AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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TAKING THE THANKSGIVING TURKEY.—DRAWN BY W. M. CARY.—*Engraved Expressly for the American Agriculturist.*

Instituted by the Pilgrim Fathers as a day of prayer and praise in memory of the bountiful crops of the first harvest in their new home, Thanksgiving Day has grown with the nation's growth, and become a National Holiday. It was originally a farmer's festival, but now the observance has become so general that the home that is not upon the farm is none the less the scene of thanksgiving joys and praise. One of the most attractive features of this memorial day is the gathering of the scattered members of the family at the old home, there, under the parental roof, to give hearty thanks to the Giver of all good for the ingathered crops, and the great blessings of national growth and prosperity. To many of us Thanksgiving means a feast of the fat things of the land—the best pumpkin made into the best pie, and the finest turkey of the flock served up with cranberry sauce, and all the good things that go to make the feast complete. Thanksgiving Day and turkey have been associated together so long, and that for excellent reasons, that it seems as if the noble bird would almost know the day appointed by the President for his dissolution. From the time he is hatched out of the speckled egg, through his early confinement in coops and pens, and later, the wider range and roaming over the fields—through all this time, every act of kindness and care shown him by his owner is prompted by the amount and sweetness of the meat he will put upon the platter at the "Thanksgiving Dinner"—the center-piece of the loaded board. In the accompanying engraving the artist shows us one of the last scenes in the tragic life of the fated turkey. It is doubtless Thanksgiving eve—the night before the feast. With one or two exceptions, all the turkeys of the flock, save those reserved for the next season's breeding, have been sold and are already dressed and in the market. The hour has come for the *exceptional* turkey—the largest one of them all, it may be; watched and fed with more than average care, because selected weeks before for the part he is soon to play at the joyful reunion of his owner's relatives and friends. The engraving shows how, in many a farm-yard, the boys and the lantern go forth to catch and kill the fat and innocent bird. "Thanksgiving" is preëminently a home festival, and though as yet a distinctively American institution, it deserves not only to be preserved to us with all its sacred recollections, but it or some similar custom should be spread throughout every land where the ties of family friendship prevail. For the past few years we have been blessed with full crops, and at no time in the history of our Republic have we had more reason for hearty rejoicing than at the close of 1880. We hope the day will be observed by every member of the great *American Agriculturist* family, whether he dwells in New England, the birth-place of the institution, or on the frontier, where the thanks perchance may be for the first harvest from his land.

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AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1880.

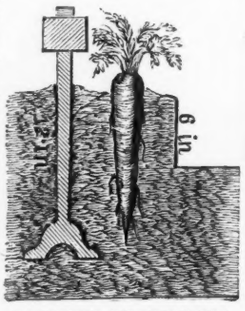
Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

The Season throughout the Northern States is likely to be variable. We may have Indian Summer, and we are quite sure to have hard frosts, storms, and snows. All these vicissitudes are to be provided against, and taken advantage of.

The Harvesting of Root Crops is to a great extent accomplished this month. *Potatoes*, by the first week of November, are, or should be, all out of the ground, except possibly south of Pennsylvania and along the coast. If the ground freezes, some are inevitably injured by the severe cold.

Beets and Mangels are protected by their broad leaves (from frosts) which would otherwise injure them so as to cause decay; but as soon as the leaves are wilted the growth of the root is checked, and they should be harvested and pitted at once. The same is true of *Carrots*. They bear very little freezing, and the frosting of the leaves is the signal for rapid gathering. One of the most convenient methods is to plow a furrow close to the row—and run a subsoil-plow close on the other side, as shown in the accompanying engraving. The carrots may then be pulled unbroken, and with perfect ease.



LOOSENING CARROTS WITH A SUBSOIL-PLOW.

Turnips may be left longest before digging, but repeated freezing makes them pithy and innutritious.

Pitting Roots.—Trenches four feet wide and two feet deep are of a size well suited to either a moderate or severe winter. If put in too large heaps, or too deep pits, roots heat, and of course do not keep well. Cover with straw, and lightly with earth patted down to shed rain, and ventilate well.

Root Tops and small roots may be fed to cows and young stock quite freely, before they heat, which they will do quickly if in heaps. It is well to lay them on the north side of some building, where they will not become sun-dried, for thus they will be kept much longer than in any other way.

Soft Roots and hollow ones, which cannot be pitted, are profitably fed to either pigs, sheep, or young cattle, and also to cows that are dry.

Neglected Work.—Should any of the proper work of last month have been neglected, such as sowing winter grain, husking corn, etc., it may perhaps still be done. Corn-husking may be done at any time. Rye may be sown as long as there is a prospect of a fortnight of open weather. Wheat sown in November often does well, so if the ground is prepared your plans need not be changed, for the probabilities are in favor of good crops, though late sowing has nothing to recommend it.

Thrashing must be done generally when you can get the thrasher—so it is well to speak for it in season. The sooner grain is thrashed the more there will be of it. It should, however, be thoroughly dry. Small farmers will improve rainy days as they come by thrashing by hand. Besides this suitable

Rainy-day Work is painting and cleaning of tools, oiling and mending of harness, cutting kindling wood and such like jobs common upon every farm.

Manure and Compost.—The season is still favorable for the growth of the compost heap. Weeds and all sorts of hedge-row rubbish ought to be burnt, for the seeds are ripe, and we can not depend on their germinating in the compost heap. Grassy sods, the tops of the roots which can not be fed out, leaves, and wood or swamp mould, and all such things add both bulk and value to the heap.

Draining upon upland may now be prosecuted more conveniently than at any other season of the year. Labor can be hired cheaply, and the work can be rushed if desirable. Never lay these drains less than three and a half feet deep, if it can be helped. See article on levelling and laying the tile in the March No., *American Agriculturist*, page 97.

Ditching.—Should the season continue dry, ditching in the swamps is in order. In muck swamps dig the main ditches deeper and broader than necessary, say two or three feet wide at the bottom, and eight or ten at the top, and throw out the muck on one side to lie and freeze until spring, while the tussocks and sods are thrown by themselves, to be burned next summer when thoroughly dry.

Poultry.—The Poultry year culminates this month. With plenty of corn, and something to pick up in the fields, poultry increase rapidly in weight, and should be forced so long as the weather remains moderate. When the thermometer goes lower and lower, they will stop gaining suddenly, and hardly hold their own, though consuming more feed. Of course that would be the time to kill if every body would not kill at once. Those who have warm, airy houses for their poultry can profitably hold on to them until the reaction comes and prices rise; but those who watch the market may take advantage of fluctuations as they come at any time.

Buildings may be repaired and painted, if that has not been already done. The season is favorable for painting, as very little dust and no insects are likely to adhere to the paint.

Horses, though they may still be kept at pasture, if desirable, should have a shed at least to retreat to during hard storms. Do not work them at all on the road if they have colds or the prevalent influenza, absurdly called "epizooty," the best cure for which is a warm, airy stable, and perfect rest, although they ought to have a good run in the pasture during the warmest part of every day.

Cows which are giving milk must have an increase of feed. Mangels, or sugar beets, are best. Cut them in slices, and sprinkle them with bran, and feed half a bushel more or less at a time, after the cows have filled themselves with hay or corn, fodder or grass. Soft turnips may be fed to some cows at milking-time, and not flavor the milk. Keep up the flow of milk, if possible, especially with young cows, by feeding meal, bran, and roots.

Burning Brush and Rubbish.—Where this has been cut along the fences on the road, or between fields, late in the summer and is now dry, burn it, and spread the ashes on grass land. It only harbors vermin, mice, rabbits, and insects.

Fence Rows.—There is no better season than this for cleaning up fence rows. Take the fence up altogether. If you need a fence, set it up again a rod away with the tops of the posts on the ground and the butts in the air (supposing it to be a post and rail fence), supporting it by forked stakes against the posts, as shown in the accompanying

A TEMPORARY FENCE.

engraving. This leaves all clear, and the old ivy-grown, briary, weedy, stony strip can be grubbed and plowed and cleaned up, sowed to grass, and the fence replaced. It is no great job, and if forty rods a year could be treated in this way every year, it would soon make a difference in the looks of most farms that would be much for the better.

Young Stock need not be housed until real cold weather sets in, but they should have a warm shed to lie in at night, and be kept in first-rate condition through this month with turnips, fed tops and all.

Sheep bear more exposure than any other of our domestic animals (not even excepting horses, not worked) that is, exposure to the weather, but not without shelter from storms. The ewes ought to be in lamb by this time, and must be kept doing well. Half a pint of corn a day each will go far towards keeping them in good condition. Weed out all those which show signs of weakness, have poor teeth, etc., and fatten them if you can.

Pigs.—It is much better to kill early than late. As soon as cold weather comes on, pigs will gain very little, if any, and often lose during cold storms. Therefore, crowd them if not fat enough to kill. Feed occasionally pulverized charcoal, to keep their digestive functions in tone; keep them clean and warm, and coax them to eat every ounce possible.

Poultry need to be treated much in the same way. That is, fattened and killed early, if intended for market. Though prices usually go up steadily after the first of January, yet the additional cost of fattening in December, or of holding poultry after it is fat, is but rarely paid for by the higher price. Warm quarters are essential to winter laying.

Notes on Orchard and Garden Work.

This month brings the orchardist and gardener to the close of one year's work, and to the beginning of another. While he is occupied with the storing and sale of the crops that have been gathered this season, he must lay plans, and make preparations for the season and the crops to come. The spring is short and the work then to be done so great, that it is the most hurried season of the year. This shortness and pressure of spring time is in a measure compensated for by the comparative length and leisure of autumn, which allows one to do much of the so-called "spring work" well in advance. So gradual is the approach of winter that frequently the work suited to October may be carried on until well in December, in which case the Notes about fall work given in October apply with equal force during the present and next month.

Orchard and Nursery.

Fall Planting.—Late October and early November are often very favorable to the planting of trees. The soil is still warm from the accumulated heat of summer; it is rarely too dry, and if properly drained not too wet. If in planting we cut, as we should, every broken root back to a sound place, in a short time these roots will have overcome the bad effects of the removal, and will be ready for vigorous growth in the spring. South of 40°, in most years, planting may be done during the greater part of the year without any injury to the newly set trees.

Young Trees planted this fall, or even last spring, should have earth drawn up around them, making a mound 12 to 18 inches high. This mound of earth should be free from sods, and weeds, and will serve the double purpose of a support to the trees against the winds, and prevent the mice from gnawing them.

Draining.—Water should not be allowed to collect on the surface; a few furrows in the right place will carry it away rapidly. Underdraining, to be the best and most economical, should be all finished up before hard freezing weather sets in.

Cions may be cut as soon as the leaves fall, and should be packed in saw dust or sand, and kept in a cool place. Select only from thrifty trees of the best varieties. If you do not have them it is better to buy than to use second-rate stock.

Labels upon trees should be looked to, that they do not get lost or become illegible. The old kind of pine label, marked with lead pencil while a coat of white paint is fresh upon it, is about the best. Zinc strips are used and preferred by some.

Seeds of Trees for planting in the spring are best preserved in boxes of sand, the boxes being kept in a cool and dry place, out of the reach of mice.

Stocks for Root Grafting.—The grafting of roots is done during the winter and the stocks should be in a handy place. Take up the stocks before the ground freezes, assort and tie them in bundles, afterwards put in boxes, and place them in the cellar.

Rabbits if left to themselves can do much harm. A protection of the trees may be made of lath, or tarred paper may be tied about the trunk with fine wire. Smearing the trees with blood will keep away the rabbits, as meat is very distasteful to them. A fat rabbit in November is good eating, and a small bounty will induce the boys to trap and otherwise secure many of these injurious animals.

Manuring.—The orchard needs to be fed as well as any other field when a yearly crop is removed. Circumstances will determine the kind of manure to use. That from the stable is always in order; good bone, ashes, green crops turned under, are all of great value, and one or more should be used.

Keeping Fruit.—The cellar of the house, if possible, should not be used for storing large quantities of fruit, but if used there should be ample ventilation to carry off the carbonic acid produced by the ripening fruit. A uniform temperature of about 40°, or just safely above freezing, accompanied with a dry atmosphere, is the best. Pears should be stored in drawers where they can be inspected occasionally. Apples, if properly picked and packed in barrels, ought to keep undisturbed.

Make all Snug for Winter.—Clear up all rubbish in the orchard....Pick up the refuse fruit and feed to the pigs, that the contained insects may be destroyed....Fences and gates, especially of young orchards, need to be cattle proof at all seasons.

The Fruit Garden.

Currants and Gooseberries.—The material used in the propagation of currants and gooseberries are the pieces removed from the bushes at the time of pruning. The bushes should be pruned so soon as the leaves fall—a month or so ago—though many put it off until much later. In making the currant cuttings, use only the growth of the present year, cutting it into six-inch lengths. The cuttings should be set quite close together in boxes of earth, the soil being deep enough to allow the cuttings to be two-thirds beneath its surface. The boxes are to be set in the cellar and kept dry during the winter, and in the spring the cuttings should be put in trenches four inches apart in the rows.

Blackberries and Raspberries.—The dead stems were cut away soon after the berries were off. If not done then, through neglect, do it now, and tie up the new canes for the winter. Tender varieties must be covered this month. This may be done rapidly by two men, one bending the canes down in the direction of the row, while the other throws earth upon them, either in sufficient amount or only to hold them down for the covering plow soon to follow. New plants of raspberries and blackberries are usually supplied by suckers, allowed to grow for the purpose. Roots may be cut from the old plants without injury. These root-cuttings, three or four inches in length, are then placed in layers, in boxes of earth, and stored in the cellar. The cuttings are set in open ground in early spring.

Grapes.—The sooner the grape vines are pruned, after the leaves are off, the better. Young vines, set last spring, should bear one or two shoots—if the present growth is half an inch thick, two shoots may be left. Cut the vines back to three buds or so, leaving extra ones to provide against accident. There is no rule for pruning old vines; the condition of each vine must determine it. Leave enough buds to produce sufficient shoots to bear leaves and fruit clusters. The buds left after pruning represent the new growth of next year. The cuttings are made from the prunings, and should have two buds at least; tie them in bundles, label, and cover in earth in the cellar. Many varieties, like the Concord, grow rapidly from such cuttings, when planted in the open ground in spring; others, with harder wood, as the Delaware, are best raised in propagating houses with special care.

Strawberry plants should be covered before freezing weather sets in. Straw, salt or marsh hay, or leaves may be used, placing the material thickly between the plants, but only lightly directly over the plants, as too much covering smothers them.

Kitchen and Market Garden.

Should the present month be a mild one, many of the October Notes will be seasonable now, and to avoid repetition we refer the reader to them. In a nutshell: Do now whatever the weather will permit. So soon as a crop is off plow up the soil and leave it without harrowing, as the exposure of the ridged surface to the weather improves its texture.

Asparagus.—Cut and burn the tops and give the bed a generous covering of well rotted manure.

Celery should be dug and stored before the ground freezes hard. A trench is dug in a dry place, a foot or so in width, and deep enough to bring the tops on a level with the soil. Place the plants in it close side by side with no earth between. Cover slightly with straw or leaves, and as the cold increases add more covering until it is a foot thick. Boards may be put over the straw, lengthwise of the trench, to keep out the rain, and make it easier to get at the celery if there is snow on the ground.

Cabbages may be left out until heavy frosts come, when they should be pulled and placed heads down in rows, and the heads covered with a few inches of earth. A plow may be used in covering them; two furrows being turned over the heads, doing most of the work. For a small lot a common method is, to dig a trench in a dry place, set the cabbages in the trench, close together, and cover at first with a little straw. As the weather gets colder put on more straw, and as the winter sets in complete the covering with more straw and a layer of boards over the whole. Soft cabbages, if planted in this way, will come out in fine condition.

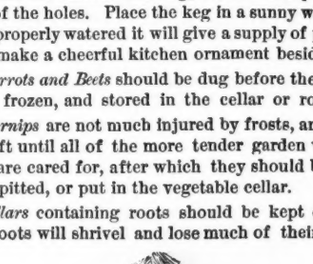
Parsnips.—A portion for present use may be dug and stored in sand in the cellar, the rest can remain in the ground as freezing improves them.

Parsley may be grown for winter use in the kitchen where there is no greenhouse, by means of a keg with a number of holes bored in its side. A crown of parsley is put at each hole, the roots extending into the sand inside the keg, while the tops grow out of the holes. Place the keg in a sunny window, and properly watered it will give a supply of parsley and make a cheerful kitchen ornament besides.

Carrots and Beets should be dug before they have been frozen, and stored in the cellar or root pit.

Turnips are not much injured by frosts, and may be left until all of the more tender garden vegetables are cared for, after which they should be dug and pitted, or put in the vegetable cellar.

Cellars containing roots should be kept cool or the roots will shrivel and lose much of their freshness. Where the roots are put in small pits, it is convenient to use barrels, as shown in the engraving.



A ROOT CELLAR WITH BARRELS.

Cold Frames are for protecting the plants in a dormant state through the winter—not for growing them. The sashes should not be put on until the freezing weather sets in. Tilt up the sashes whenever the temperature of outside will permit this, giving a circulation of pure air among the plants.

Flower Garden and Lawn.

The Lawn should go into winter quarters with a good length of grass to serve as a mulch and protection. If manure is used as a top dressing, only that which is thoroughly composted and free from seeds of weeds should be applied. It may be put on at any convenient time during fall or winter.

Leaves.—The lawn and paths should be raked after the leaves have fallen, and the litter thus gathered used for protecting tender plants. This raking improves the looks of the grounds as well as secures a valuable covering for plants.

Perennial Weeds, like dock, plantain, etc., should be removed from the lawn when the ground is soft from the autumn rains. A long chisel with a handle is handy in removing their roots from the soil.

Evergreens show to the best advantage at this season of the year, after the leaves of the deciduous trees have fallen. A diversity of form and variety in shades of green, are pleasing, and can be obtained with care exercised in the selection of the plants, their location, grouping, etc., and pruning.

Beds and Paths may be laid out, and much of the work upon them done at this season of the year.

Winter Protection.—A few evergreen boughs, sufficient to break the winds, and afford shade, are found to answer the purpose of protection, avoiding the danger of smothering the plants which often resulted from the old way of covering with a thick layer of straw, closely packed about them.

Bulbs to be housed for the winter should go in before the ground is frozen. The hardy ones, like the Hyacinths, Tulips, etc., should be planted early.

Greenhouse and Window Plants.

Insects, when found on the plants, should be destroyed at once by using tobacco water, soap suds, etc. Plants, if neglected, may be ruined in a short time. Success in the fight with insects depends largely upon one's promptness and perseverance.

Climbers, like English Ivy, Tropæolum, German Ivy, etc., add very much to the beauty of a greenhouse or window. Select the plants now.

Hanging Baskets should be placed where they can have an abundance of light and sunshine, and not near the stove or register. If the light comes from one side, the basket ought to be turned every day.

Watering.—The successful culture of house plants depends largely upon the care in watering. The pots should have some pieces of broken pots or oyster shell put in the bottom to provide proper drainage; with good drainage there is but little risk from over-watering. A thorough wetting when water is needed, is far better than keeping the surface moist, by frequent "sprinkling." Hanging baskets may be dipped into a tub of water.

A Gradual Change.—We should have much fewer complaints of failure with house plants if they were less subjected to sudden changes, both when they are brought in from their summer out-of-doors, and while in the house in winter. When the air of the room is changed it should be done without allowing a cold current to fall upon the plants.

Bee Notes for November.

BY L. C. ROOT.

WINTERING THE BEES.—In most northern sections, bees that are to be kept in-doors should be placed in winter quarters during the present month. Those to be wintered out-of-doors, should be properly packed and protected. We have so often described, in our previous Notes, the proper manner of preparing bees for out-of-door wintering, as well as a suitable place in-doors, that we shall omit it at this time; and besides every bee-keeper who needs a detailed description should have the necessary information at hand, in some practical work, where it is given much more minutely than we could do in the space allotted here. I simply wish to say that the subject will require the closest attention and study if success is to be attained, as *perfect* success in wintering is yet far from being established even with the most thorough bee-keepers. A system of wintering, by which one shall have none but good strong stocks in the spring, will go farther in insuring a profitable season than any thing else connected with bee-keeping.

HONEY.—Now that the bees are comparatively idle, we may well consider some general questions of interest to all. A correspondent says: "I have had a number of persons ask me about how bees make honey. Also concerning the relation of feeding sugar to honey-making. Does the sugar become honey, or is it changed to honey by the bees?"—These inquiries are evidently made by parties who are practical bee-keepers, and are of very much interest to all classes. When it is remembered that bee-keeping although yet in its infancy, is becoming a very important industry, and that honey is produced by hundreds of tons each season, we see that the public, who are the consumers, may well desire to know something of the subject. In answer to the first question, correctly speaking bees do *not* make honey, they simply gather it. We have endeavored in our Notes heretofore, to give an idea of the different classes of blossoms from which bees gather honey most freely. It is well known that honey varies in color and quality. It will be found that these variations are according to the different sources from which it is obtained. For instance, the basswood, or linden tree, blossoms very freely, and yields honey of a superior quality in great abundance. The largest part of the best and whitest honey placed upon our market is gathered from these blossoms. Later in the season, buckwheat, which is also a free bloomer, yields honey abundantly, but, unlike the basswood, it is of a dark color and entirely different flavor. There is as marked a contrast in these two qualities of honey as there is between the finest white syrups and ordinary molasses. There is a large class of consumers who are particularly fond of buckwheat honey, choosing it in preference to the lighter grades. While in most localities these two kinds constitute the larger part of the honey gathered, there are very many classes of flowers yielding honey in various degrees of quality and quantity. While it is true that these different varieties of honey undergo some change in being gathered from the flower, as indicated below, it is also true that they retain their original characteristics, and can easily be identified.

"Is sugar made into honey by the bees?"—Certainly not. The fact that the bees handle sugar-syrup, and place it in the cells, does not make honey of it. If sugar syrup, or molasses, is furnished to them, and they store it in their combs, it will be found to be the same there, just as certainly as the fine linden honey or darker buckwheat are found to possess their peculiar qualities. When the honey is gathered from the flowers it is quite thin. It is so handled by the bees that the moisture is evaporated, and when stored in the cells the air is all excluded, so that it will remain in a liquid state, and not become candied, as it does when exposed to the air. Syrups would likewise undergo a change in these respects.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

We Don't Like It.—It is impossible to attend many of the fairs, coming crowded as they do, into two or three weeks, and scattered far and wide over the whole country from Maine to California. The last one we were at reminded us too much of a place to sell goods at retail, rather than a display of the wares to please and instruct the visitors, and a healthy striving for the prizes. Mr. Smith was there occupying a permanent place in the machinery hall with a soap to cleanse the skin, and was calling upon every one who passed him to buy and try it. Another man, Jones, the cutler, was there with a full assortment of Jack-knives, and was making it a point to close out his stock at cost. What right has a drygoods or hat store to the space—and much of it in many places—in any building in an Agricultural Fair. We fail to see how it helps agriculture; it is not for the greatest good of the greatest number. Shop keepers we should suggest had better go the rear and let their places be filled with those things which cannot be constantly on exhibition in the street windows of every city, large or small.

Read the Advertising Columns.—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

Show of the N. Y. State Agricultural Society.—Much of the success of such a show depends upon the weather. The exhibition may be fine, or it may be meagre, to the majority of those who attend it makes little difference; but the attendance really is "the making" of the show. This year two days were unpleasant—showery, and muddy under foot—with slender receipts and a discouraging outlook. The next two days were all that could be desired, and happy thousands crowded the gates all day, and went home tired, and gratified. Thus the show was a grand success, and as an exhibition it was most excellent. There were indeed many fine herds of cattle unrepresented, but the credit of the cattle of the Empire State was well maintained. The striking feature of the show was perhaps the prominence of the Herefords. We have never before seen so many of this fine race of beef cattle together. Excellent specimens they were too. The large-uddered kine of Holland made a great show also, as did the trimmest, most compact and beautiful of all neat cattle—the Devons. These last are old favorites which seemed to lose favor a few years ago, but now seem to be gaining again as is meet. Shorthorns, Ayrshires, Jerseys, and Guernseys, were well represented, by some of the finest herds in the State, with some from New England. The show of Horses contained an unusual number of heavy draft horses, both of the Clydesdale and Norman breeds. We were not especially impressed with the excellence of either the sheep, pigs, or poultry, though the entries were numerous and the show good. There was a remarkable exhibition of plows. The forms being more or less new and varied. They were furnished with the "skim" instead of the coulter, almost without exception, and in other respects the show of implements was of universal interest. The Dairy Department seemed meagre, the Horticultural, good, and on the whole the show was fully up to the high average of the recent exhibitions of this excellent Society.

"Snobbishness" or "Laziness."—An item going the rounds, says that a young man in Madison, Wis., bought six collars and a neck-tie, weight under 4 ounces, and through snobbishness or laziness, ordered them sent to his residence; he wouldn't carry a parcel in the street. They were sent in a heavy freight wagon; two men laboriously carried the parcel into the hall, and inquired if it should be left there or carried upstairs. His "affianced" happened to be there, and saw the exhibition. Served him right.....A certain lady (?) bought a spool of thread, and ordered it "sent home"—over half a mile. .. A farmer of our acquaintance, an old subscriber to the *American Agriculturist*, was stopped in the rain by a wealthy man, who haggled about the price of turnips for several minutes, finally getting them down from 33 to 25 cents a bushel, and then ordered a peck; and ended by asking that half of them be yellow turnips for his wife, and half white ones for himself! We saw their *delivery*, in a immense cart, drawn by 17 yokes of oxen, with a driver for each yoke, each driver carrying and wielding a long whip, and vigorously shouting, "haw, gee, g'long, etc." The oxen's horns were ornamented with white and yellow ribbons, and the white and yellow turnips were marked by ribbons of corresponding color tied around them! The cavalcade made a tour of the town and three wide circuits before successfully backing up squarely to the purchaser's gate. Four men delivered them in a huge basket, and the farmer refused to receive more than 6½ cents, the contract price. A mechanic, previously engaged, was present to chip off the quarter of a cent to make the "change" right. The seller and drivers—neighboring farmers—then went to a hotel, "put out" their teams, and had a bounteous dinner together.

Did it Hurt Him?—The above suggests another incident. The writer of this lives some distance in the country, going to the city daily, or as needed by business there, in company with hundreds of others. On the train goes a man reputed to be wealthy and liberal, who almost always has a parcel in hand—some purchase for home, a weekly package of books or papers for his Sunday School, etc. On the same train travels a man whose family dresses extravagantly, and he himself fares sumptuously at the noon lunch; but he is always "short" when a subscription paper goes through the cars for a public or benevolent object. One evening, seeing the first-named gentleman carrying a rather heavy package, he said, "Why don't you send home your parcels by express? I always do; I would not carry them." The simple but withering reply was, "My friend, I have done this for more than twenty years; *it does not hurt me any;* I have saved not less than $2.000 thus, and when I want to give one or five dollars to any good object, I find it in my pocket." Did it hurt him? The *American Agriculturist* thinks it did him good.....In Philadelphia, in a store one evening, a young man just starting in business, bought a parcel of a few pounds weight, and taking it up, said, "I would like to give some one a shilling to carry this home for me." A gentleman, from whom the young man purchased some of his stock in trade, *on credit*, stood near, unrecognized, and immediately accepted the offer. Arriving at the house and receiving the shilling, he remarked, "young man, when you want any other such parcel carried, please call on me," handing him his card, which read, "Stephen Girard" (the millionaire). The lesson was a useful one to the business man, and, taken to heart, it made the learner a most successful man in all his after years.

Plants for Name.—"W. G.," Warsaw, La. The plants sent belong, as you think, to the order *Scrophulariaceæ*. The large flowered one is *Gerardia flava* or Downy False Foxglove. The other belongs to the same genus, and is the Purple Gerardia, or *G. purpurea*. We could not tell the species of Sunflower without specimens.

BY SPECIAL REQUEST.

"20 Days Grace."

The "Bakers' Dozen."

"Please for once *extend* your offer to new sub-"scribers for a few days after Election. My neigh-"bors have 'politics on the brain' just now, which "is all right and proper for true American citizens "at such a time; but this stands in the way of our "promoting good farming and home comforts, by "efforts to get people to taking and reading your ex-"cellent and most useful Journal.—The extra num-"bers, the 'Baker's Dozen' as you call the 14 "month's subscription for the price of 12 months, "is one helpful argument with some slow people—"those who have not learned the utility and value "of reading such a paper...."

Such in effect is the language of one of our friends, and the expressed wish of many others. The Publishers respond by announcing that *the extra offer will be extended a little beyond Election,*

Thus:

Every New Subscriber for 1881 (Vol. 40) received before November 20, will be Presented with this paper for the last Two Months of 1880. (We will, for this purpose, keep the plates of this number in printing order until November 19).

NOTE

FIRST.—*This Offer extends to* **all** *New Subscribers for* **1881**, *including those sent in on Premium Lists.*

SECOND.—*All new subscribers for* 1881, *arriving between Nov. 20th, and Dec. 5th, will be presented with the paper for December.*

THIRD.—*To put all on a par, those living anywhere too remote to get this paper before Nov. 1st, may have the* 20 *days beyond the time of receiving* THIS *number, to collect and forward new subscribers and get the Two extra months.*

Now for the Premiums.

As the election excitement will soon be over, now is the time to push on the making up of lists of names to secure the valuable articles offered in our Premium List. Many can do something at the poll gatherings. The premiums are open to *all*, everywhere, and any body may get them.

Over 25,000 Men, Women, and Children have secured one or more *most desirable and useful articles* **without cost,** simply by collecting some names of subscribers for the *American Agriculturist*, and every person they have thus induced to become a reader has been benefited. *Anybody else may do the same.*

Our friends are doing nobly, already; the premium names received since September 1st, are double last year even, despite the election excitement. There is every indication of coming abundant prosperity for the country generally, and this Journal will do all possible to help promote that prosperity.

Our plans are very large for *greatly advancing* the value, beauty, and *usefulness* of the **Fortieth Volume,** and our friends, in soliciting new names as subscribers, and in making up premium lists, may put forth high promises; we will meet them.—Invite every body to get ready for the forthcoming volume by beginning with the last two months of this year, as above offered.

N.B. The Fine 44-page Illustrated *Premium List* will be mailed *free* to any one not having received or preserved a copy, by simply sending a postal card request for it, giving name and P. O. address.

Fattening Turkeys.—"J. B. J. P." South Durham, Que., asks, "What do you think is the best and quickest way of fattening turkeys? I mean to fatten up a couple of hundreds this fall for the English market."—Our own experience, on a small scale, indicates cooping closely in open slat coops, well roofed, set up from the ground so that the dung will drop through, and feeding especially corn meal, but changing for a single meal now and then to buckwheat, barley, wheat, etc. Use powdered charcoal occasionally, and follow the plan of soft feed by day and a good feed of hard grain at night.

Convention of Agricultural Chemists.—A meeting of Agricultural Chemists was called at Washington, D. C., July 28th, by Hon. J. T. Henderson, Commissioner of Agriculture of Georgia. Upwards of twenty of the leading Agricultural Chemists were present; their attention was principally devoted to the consideration of the best methods of analyzing Commercial Manures. An adjourned meeting of the Convention was held at Boston, Aug. 27th, in connection with the Association for the Advancement of Science, at which, methods for the determination of Potash, Ammonia, and Phosphoric Acid were provisionally adopted for a year. This movement of the Agricultural Chemists will probably result in the establishment of a sub-section of Agricultural Chemistry in the Association for the Advancement of Science, and a thoroughly organized body of earnest co-workers in the important field of Agricultural Chemistry.

The Mississippi Valley Horticultural Society.—Judging from the number that took part in the first exhibition of this new Society, and the wide range of country represented, it would seem that it is a national rather than a sectional institution. Fruit growers and fruit were there from the many States, from New York to California, and the Show was all that the most hopeful could have anticipated. It is a pleasure to record the opening of a new Horticultural Society, with so much promise as this one has of future success.

The N. Y. Horticultural Society.—The autumn show of this Society was held on Sept. 22-24th at Metropolitan Concert Hall, and was perhaps the most successful ever held by this Society. Mr. Wm. Bennet won the grand prize for the best 50 stove and greenhouse plants. As usual the Parsons and Sons Co., of the Kissena Nurseries, Flushing, L. I., took the first prize in Evergreens. John Jones, of Madison, N. J., made a fine display of cut Roses. The show of Ferns was very fine, and the chief prizes were taken by Mr. Henshaw, gardener to Mrs. John C. Green, and Mr. F. Roenbeck, Bayonne, N. J. The prize for Gladioli was awarded to Dr. F. M. Hexamer, New Castle. Mrs. M. J. Morgan made a fine show of Orchids. Messrs. Hallock and Thorpe, of Queens, L. I., exhibited a large collection of Double and Single Pelargoniums, never before exhibited in New York. The best Cut-flower prize was taken by Peter Henderson, of 35 Cortlandt St., N. Y. W. C. Wilson & Co., of N. Y., had a large and characteristically good display of Plants, Flowers, and Floral Designs. Woolson & Co., Passaic, N. J., exhibited a large and choice collection of Hardy Herbaceous Perennials. Among special exhibits the display of Aquatics from Mr. E. D. Sturtevant, Bordentown, N. J., was the most interesting, consisting chiefly of *Nymphæa Devoniia, N. rubra, N. cærulea, N. dentata*, and the Egyptian Lilies. Among the principal prize takers in fruits were J. H. Rickett, Newburgh, N. Y., T. S. Force, also of Newburgh, and C. J. Copley, Staten Island. In the Vegetable Department, Messrs. B. K. Bliss & Sons, 34 Barclay St., N. Y., Wm. Ball, Spuyten Duyvil, and F. G. Hexamer, New Castle, were among the successful competitors. The fruit and vegetables were not as abundant as one would have expected.

Building an Ice-House.—This is the season for constructing a house for storing ice. The absence of a plan with full directions, cost, etc., makes this an exception to Nov. numbers of former years. We have nothing new to offer. Those who desire to build, and are not already informed on this important matter, may be glad to know that back numbers containing plans for ice houses, will be sent for 15 cents each. The last plan published—a cheap house to hold about 30 tons—was given in September last. Some of the other numbers, containing fully illustrated articles are: Oct. 1870, Nov. 1871, Oct. 1874, Dec. 1875, Dec. 1877, Nov. 1878, Dec. 1879. The chief rules in constructing the ice boxes are: to have a good non-conducting cover to the ice, perfect drainage with air-tight foundations, and ventilated at top. Store the ice in dry, cold weather, and have it packed closely, and the mass as solid as possible.

Pansies Destroyed by a Grub.—"R. T. H.," Summerside, P. E. I., writes that a small, dark, slate-colored grub, with fine, black stripes on back, and light-colored beneath, about half an inch long, has eaten the leaves of his pansies, and caused the stalks to dry up. Hand-picking and other remedies availed nothing. We suggest "London Purple" as a safe remedy. It should be dissolved in water and applied as for "potato bugs."

Dead Trees.—"M. Z.," Nazareth, O., writes: "For several years we have been in the habit of sprinkling the grass in our apple orchard with liquid manure, taken from a sink near the manure pile. A few of the trees, now about forty years old, have died. I am told watering with manure is the cause. Is this so?"—No—If it has done the grass good it has certainly not hurt the trees. The difficulty is probably that you have borers in the orchard, and other trees will be attacked. The apple borer may be found beneath the bark at the surface of the ground, and killed by pricking with an awl, or cutting out with the knife, but most successfully fought by making a little mound of ashes or lime around the collars of the trees in the spring, which prevents the beetles laying their eggs there.

A Western Swindle—perhaps not confined to the West—by an adroit use of a scientific instrument, is detailed in our "Humbug Column." It can not fail to interest every reader, either old or young.

Blight of Fruit Trees.—Prof. T. J. Burrill, of the Illinois Industrial University, read a paper on "Anthrax of Forest Trees" before the Association for the Advancement of Science, in which he gave the results of some experiments which he had made with pear blight and fire blight of apple trees. He considers them identical in origin, and the result a living organism—a small fungus of the genus *Bacillus*, growing in the living bark. So minute is this fungus that a very high magnifying power of the microscope is necessary to see it. The method of experiment was to cut off small portions of bark of diseased trees, and insert them beneath the bark of healthy ones, as in the process of budding. Sixty-three per cent of all the pear trees inoculated became diseased. Of pear trees receiving virus from blighting apple trees, 73 per cent became affected. When the process was reversed, a much smaller per cent of trees were inoculated. The most conspicuous change Prof. Burrill finds in the tissue of the affected parts is the almost total disappearance of starch from the cells. This would lead one to think that the disease is a fermentation caused by a minute fungus, closely related to those which induce fermentation under ordinary circumstances.

Colt with Chronic Cough.—"C. L. T.," Poolesville, Md. You should have consulted a good Veterinary Surgeon long ago. There is something seriously wrong when a four-year old colt coughs for two or three years. He probably has some asthmatic difficulty which he will very likely not outgrow.

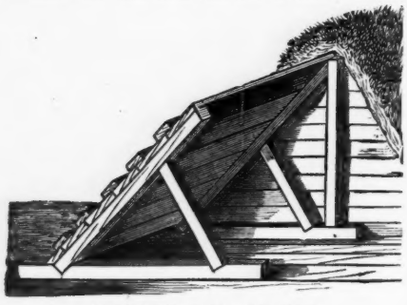
Cleaning Oil Barrels.—"J.S.," Harrison Co., O., writes: "Among the numerous plans for cleaning oil barrels, none seem to me to be as effectual as the way I cleaned one two years ago. That was by pouring into the barrel, at the bung, a pailful of strong lye, boiling hot, then rinsing thoroughly, so that the lye reached every part of the inside of the barrel. The barrel was then soaked a couple of days by being filled with clear water, when it was ready for use. I never detected the slightest odor of the oil in the cider or vinegar that has been drawn from this renovated oil barrel."

Our Editors Abroad.

It is increasingly the custom of the Editors of the *American Agriculturist* to go here, there, and everywhere, and *see* what is being done, and what is wanted. Just now two of the oldest Editors—those who have given to this Journal their whole heart and soul work for 28 and 18 years respectively, contribute Notes of Observation to this number from widely separated points. One tells us what he has seen in the West and Far Northwest—in a region hitherto little visited; the other in "Notes from the Pines," gives a condensed variety of observations, horticultural and otherwise, from over the sea. The latter is accompanied by another important member of the staff, whose practical work and abundant knowledge will doubtless yet do much towards supplying most useful information to our readers.—With so important a part of the editorial working corps absent, we hope our readers will find in this number evidence that there is a "reserve force" sufficiently strong to get out a fairly good paper, to say the least. It speaks for itself! But all hands will be back at their posts in time to take hold of the first number of Volume **40** with renewed vigor of body and mind, and with new stores of fresh thought; and we are sure the "*two-score*" Volume will surpass all previous ones in many ways—in beauty, in practical, useful, interesting material for all of its hundreds of thousands of readers.

Specimen of Muck or Peat.—"J. J. T.," Pass Christian, Miss. The sample called "muck" is excellent peat—good either for manure or fuel. To prepare it here for manure it would be best to dig it late in autumn or winter, and expose it while wet to freezing, but it is hardly likely that with you it would have frost enough to break up its tenacity. However, when partially dry, peat usually crumbles when roughly handled, and so you may be able to get it fine and dry with ease. When in this condition use it as an ingredient in compost heaps, and as an absorbent of liquids in the stalls, stables, and barn-yard. Composts may be two-thirds to four-fifths muck and the rest manure. Acted on by lime or ashes, with salt, such muck will prove excellent for many crops, and add much to the products of the farm.

Dam for Ice Pond.—"P. S. D.," Dean's Corners, N. Y. If you do not strike a gravel bed, the problem you have to solve is an easy one. If you can dam the stream and cause the water to back over a meadow, that is your best plan, for whatever of dirt the stream brings down will not get into the pond very much, but if the bed of the stream must be in the pond, it is still most likely that you will not have much trouble from dirt. The pond need not be over three or four feet deep; but it will probably be best to level it by plowing over the hummocks, and taking them off with a road scoop to fill low spots. The water may stand on all winter and not kill the grass roots, so if the whole is level and seeded to grass, and can be thoroughly drained as soon as the ice crop is harvested, you may depend upon one or two crops of hay besides. The best dam you can have will be a clay dyke. Through the center of this dyke, a row of planks should be set perpendicularly breaking joints, thus ▬ ▬ ▬ ▬ ▬ and clay should be rammed hard on *each* side of them. This prevents leaks, and the burrowing of muskrats. You must provide an overflow—best at the bed of the stream, and a sluice to draw off the water. The top of the overflow must usually be a foot lower than the top of the the dam. Make it as narrow as you think it will do, say four to six feet. You will need two, and perhaps four frames (see figure), upon which to spike two-inch planks crossways—making the joints as tight as possible, battening them with fence strips if necessary. Planks are nailed across the sides of these frames against the dyke on each side, and clay is well rammed against and around them. The lower part of this plank part of the



AN OVERFLOW DAM OF POND.

dam must also be well clayed, and if the clay is very stiff it will be necessary to dash a little water on it to soften it during the operation of ramming.

Sundry Humbugs.

In sending on the adroit swindle noted below, Mr. Judd writes: "Follow up the humbugs with an unsparing hand. I hear on every side, in the Far West especially, constant testimonials to the great work the *American Agriculturist* has accomplished in the persistent exposure of humbugs during all the past quarter century. Those of the cheating fraternity who work mainly through the mails, generally hide themselves in the depths of some densely populated city; operate chiefly at distant points—so far off that their victims will not be likely to ferret them out and obtain legal redress. But the Western country abounds in travelling "agents" for this, that, and the other bogus implement, patent, device, recipe, etc., etc. The press, so long silent, is latterly coming to the aid of our Journal, by copying our articles, and partly by original investigations and exposures. This is well. If they will keep it up, and unitedly shut out advertisements of Lotteries and other swindling schemes, it will be worth millions to the country. I have been told scores of times this summer by our western subscribers, that the *American Agriculturist* would have paid its readers many times its cost, if, leaving out all the rest, it had only printed its Humbug Columns and its advertising pages—the latter as one of the few sources of information, where one may find what he needs, with the confidence that he will not be cheated by the advertisers."

JOURNALS ADVERTISING LOTTERIES INDICTED.

If the newspapers would not advertise the "drawings," and the false stories about "great prizes" secured by little outlay, often told as news items, the lottery business would soon come to an end, especially now that the Post Office Department is as far as possible closing the mails against the managers of these swindling

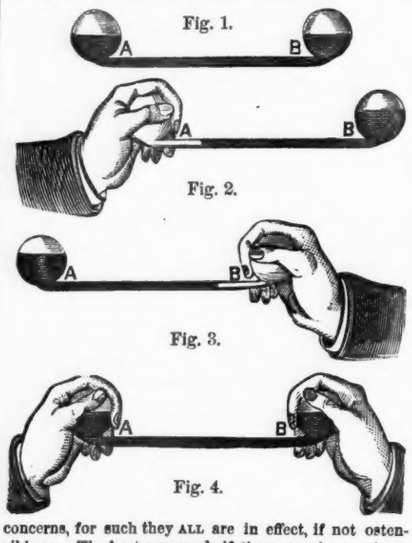


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

concerns, for such they ALL are in effect, if not ostensibly so. The best managed, if there can be any best, do not give the ticket buyers anything like an equitable chance; while as a whole the so-called State and other lotteries are merely organized cheating establishments. During the past month a considerable number of prominent journals of New York City have been indicted by the Grand Jury, and their right to trample upon, or defy the legal enactments of the State is likely to be tested. That they feel and fear, is shown by the present absence from their pages of the array of long columns of "prizes," "Capital," "Grand," and otherwise, said to *have* been secured, or that are to be secured.

An Adroit Scientific Swindler.

While travelling at the West, we learn from a friend of one of the victims, the particulars of a novel, or, at least an adroit swindle practised in Illinois and Iowa, and probably elsewhere. There is a little philosophical apparatus, long in use, called a "Pulse Glass," to illustrate the effects of slight differences in temperature. It consists of two glass *bulbs*, (*A*, *B*, fig. 1) of very thin glass, of any size from half an inch to three inches in diameter. These are joined together by a *tube* of thicker glass, anywhere from 3 inches to 15 inches in length. In making them the air is expelled by ether vapor, and the bulbs are partially filled with liquid ether, colored scarlet or red. If the hand is applied to *A*, its heat expands the ether vapor above and rapidly pushes the liquid ether into the bulb *B*, as in figure 2. Shifting the hand from *A* to *B* will quickly drive the liquid back to *A* again,

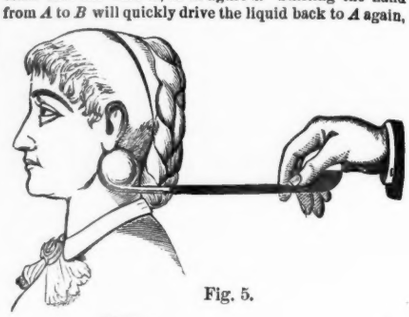


Fig. 5.

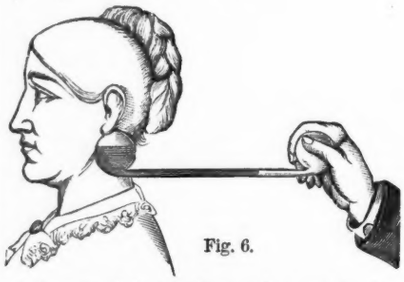


Fig. 6.

as in figure 3, and the operation may be repeated as long as one wishes. If *A* be taken in one hand, and *B* in the other, as in figure 4, and both hands are equally warm, there will be no motion of the liquid. If two persons each take one of the bulbs in the hand, the warmer hand will drive the liquid into the other bulb. If, as in fig. 5, a person takes hold of one *tube*, with the thumb and finger, the inside of the hand not touching the bulb, though held over it as a blind, and places the other bulb against the face, or any part of the warm flesh, the liquid will be driven into the bulb under the hand. But by grasping the other bulb closely in the hand, the liquid will be driven back, as in figure 6. In brief, any slightest degree of *higher* heat upon one bulb, will drive the liquid into the other. Simply blowing warm breath or cold air upon either bulb will cause a movement of the liquid.

HOW USED BY THE SWINDLER.

A man, of good address, driving a fine team, calls upon a well-to-do farmer, nominally to inquire the way. He speaks of the beauty of the country, etc., and continues the conversation on various topics, managing to intimate that he is Prof. B——, in the College of Physicians and Surgeons, in New York, or in some other well-known Medical University. He also himself assumes the name of some distinguished Professor in the College, and says he is out on a vacation or visit, driving for his health, and on his way to some town at a considerable distance. The result is that he gets an invitation to stop for the night, which, after sundry protestations he accepts. His horses are well cared for, he is assigned to the "spare room," and generously entertained as

"AN ANGEL UNAWARES."

He makes himself very agreeable during the evening, has much information to give, and all are delighted at having so distinguished a guest. Of course, he will not be allowed to pay for his keeping—the offer of remuneration is almost an insult. So, on departing, he is profuse in his admiration and thanks for Western hospitality, and in return feels obliged to do a little favor. So he calls his host aside, and intimates to him, in the most delicate way, that his great skill has enabled him to discern that the wife, or a favorite daughter, is threatened with approaching epileptic "fits," or even "insanity," or other brain disease, and advises him to call early upon his

"FAMILY PHYSICIAN."

The host is alarmed, and earnestly asks if it can be so. Here comes in the "pulse-glass" which the "Professor" brings out from his pocket-case of instruments. He applies the liquid bulb to the region of the jugular vein (fig. 5), and the liquid darts over to the other bulb, simply from the heat of the neck. He applies it to another person's neck, and no such effect takes place, because he then carefully *keeps his warm hand upon the other tube*, as in fig. 6. Repeated trials on different persons invariably produce the same result; the "diseased" wife or daughter only sets the red liquid in rapid motion because in her case only is the opposite bulb left unwarmed. Of course the unscientific host, not observing the sleight of hand, is fully convinced, and becomes greatly anxious. He is still referred to the "Family Physician," as the accomplished guest "determined, on leaving home, to

give no attention to his medical practice, for his own health's sake, and had only incidently referred to the case before them in a thoughtless moment, overcome by the kindness of his host.' His host is thoroughly aroused, "fears the family physician may not understand the case," and beseechingly implores his wonderously skilled guest to "do something for them." After many objections on his part and much earnest entreaty, he finally lets it out that he is going to visit a dear friend who has a member of his family similarly affected, and that before leaving the College he had prepared a single bottle of medicine that was considered the only sure remedy. He is implored to let his host have it, but he protests that it was difficult to make up, that his friend was waiting for it and he had perhaps done wrong in delaying for the night; that he could only get another bottle by telegraphing and calling an expert from a distance to make it up; that he was to have $50 for it, and that it would cost almost that to get it made by telegraph and forwarded with extra dispatch by rapid express, or by special messenger perhaps.

RESULT.

The host gladly pays the $50, or perhaps $100; the Professor drives off rapidly to reach the nearest telegraph office—(rather to find another victim a few miles off) the inert medicine is used and speedy cure obtained, because there was no disease; the family are wonderfully grateful and Providence is often thanked for directing the angel unawares to their door. Of course no one reveals to others the fact that a member of the family has been so near the verge of epileptic "fits" or "insanity"; and the swindler goes on unexposed and unmolested, finding other victims. If successful once a day, it yields him $25 to $100, which is nearly clear profit, as his "hotel bills" are next to nothing. This is a veritable case We here give it in full, to help put our readers on their guard, not only against this particular imposter, but against a variety of other "angel's visits unawares."

NURSERY AND TREE AGENTS.

"S T. R.,' of Cal. (and many others). Mr. R asks, 1st, 'if Ellwanger & Barry, of Rochester, N. Y., are reliable?"—They are entirely so, or their advertisement would not be found in the *American Agriculturist;* and 2nd, Mr. R. asks: "If I buy of ——— who claims to be E & B's. agent, will I get what I pay for."—Of that we know nothing. There are agents and agents, everywhere almost—some good, and reliable; many others are the veriest swindlers of the meanest kind. To sell a man a tree over which he is to devote years of time and care before he can know that he is imposed upon is worse than stealing his money directly from his pocket. The best way to do is to send always direct to the nurseries themselves. If disposed to listen to the agent, get his terms, etc., but *never give the order to him in any case;* send the list directly to the proprietor, *if* well known as a reputable party, and ask him all about it the terms and quality, etc., and if satisfied send the order directly to him. The "agent," if an authorized one, will settle his commission on sales with his employers.

'PROF. CALDWELL'S MAGNETO-GALVANIC BATTERY," which he asks Postmasters to become agents for, was shown up and pictured in our last May number, page 177. Then it was "Prof. Boyd's," but had no "heart" in the middle. It is just now most extensively pushed all over the country. The claims for it are non-scientific, and the sheerest nonsense. We would not give five cents a bushel for them, except as old metal.

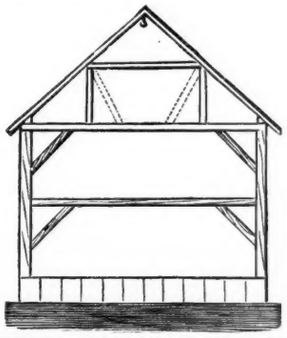
MISCELLANEOUS.

Don't buy, or touch, or become agent for any of the mixtures and preparations offered as cheaper than kerosene, for producing light, no matter how tempting the offers of profits, or of patent lever watches to agents. *All* these mixtures are positively dangerous, however "safe" the burners are claimed to be. More such offers go out from Michigan than elsewhere.....Subscribing for before unheard of *new* papers and magazines is risky, if issued by parties one has never heard of. Of course there are worthy new enterprises, but there are every year numerous such sheets started with tremendous inducements to subscribers and agents, which are frauds, or are issued by enthusiasts, or by parties with no capital; and after one, two, or three numbers go out, cease to live, and those subscribing lose the money paid in. Often there is lack of honesty or lack of money to pay postage on answers of explanation to inquiring and complaining subscribers. Complaints of such treatment are among the commonest contents of our humbug drawer..... "W. J. K.," of Mo., and many others sending medical circulars and inquiries, are respectfully referred to the full showing up of all sorts of Patent Medicines, on page 300 of the *American Agriculturist*, for August 1880.... "The U. S. Washing Machine' was pictured and its sellers exposed on page 133 of April *American Agriculturist*, to which our Lady Subscriber in California and many other inquirers among new comers, are referred.... ....To inquiring new readers: Rev Joseph T. Inman, Bible House, N. Y., an extensive advertiser, is a humbug of the first water, often exhibited in these columns.

Liquid Manure.—"A Subscriber," Millheim, Pa., writes: "Please let me know whether it would profit a farmer to apply Liquid Manure to land, and the quantity to the acre."—Liquid Manure is the "double-distilled extract of fertility"—distilled, so to speak, in the animal economy. There is not a plant on the farm which will not be grateful for it, but it must not be too strong. Whether you can apply it with profit, is another question. Probably you could with proper appliances, especially a good sprinkling cart. The quantity to be applied to the acre is hard to measure. Experience will indicate the strength desirable, and it will be found most beneficial upon grass and grain crops, frequently applied while they can be gone upon without detriment.

Peach Yellows.—"J. S.," Harrison Co., Ohio, writes: "My peach orchard has all become affected with the disease termed "Yellows," and most of the trees died from it. Would it be safe for me to replant the same orchard immediately, after grubbing out and burning the old trees? Or in other words will the young trees take the disease by their roots coming in contact with those of the old trees?"—It is proved beyond a doubt that the "Yellows" is contagious, and whatever the exact nature of it may be, it is not safe to plant a new orchard upon the same ground where the "Yellows" has prevailed to a destructive extent—not immediately at least.

Removing a Beam for Horse Fork.—The old barns, which had more and much larger beams than were necessary, had to be changed somewhat inside for the working of the horse hay forks. The method of removing the upper or "little beam" and supplying



REMOVING UPPER BEAM FOR HORSE FORK.

its place with braces is shown by dotted lines in the accompanying engraving. With this beam removed the hay fork, with its load, has free working room, and at the same time the roof is as thoroughly braced as before

New Jersey Exhibition at Waverly.—The especially noteworthy portion of the show this year was the exhibition of fruit. It was almost altogether that of amateur fruit-growers, and the specimens were superb. There was only one exhibit by a professional nurseryman. Mr. Quinn, the officer of the Society in charge of the Horticultural Exhibition, said it was the best show of the kind he ever saw, and we are quite ready to believe him. In other respects the show was about as usual. A new feature has recently been added. The Sanitary Department, in which apparatus for house-plumbing, drainage, city sewerage, disinfectants, etc., were exhibited. In connection with this, but not of it, the State Experiment Station displayed a large number of samples of commercial fertilizers sold in the State during the year. These had been carefully analyzed, and the analysis was given, together with the estimated value, as shown by the analysis, and this compared with the price at which it was sold. This "estimated value" is really no guess work, but the real value of the ingredients at prevalent market prices. It would be better, perhaps, to call it "Deduced value," as showing that the value is taken directly from the analysis in each case. In this connection we may allude to the article of *baled horse manure*, put up by a company in Newark for shipping into the country. This indicates real progress in handling the article. The bales are compact and inodorous.

"Worm" on "Pussley."—"C. T. S." sends a "worm' which he found feeding upon the common garden pest, the purslain or "pussley." The "worm" did not arrive in the best condition; it is the *larva* of some insect which we do not recognize. We rejoice with Mr. C. that there is an insect enemy to the "pussley," and only hope his tribe may increase, if it will only eat out this rapid growing pest of the garden. It may be encouraging to many gardeners to know that there is a white mould making a vigorous growth of late years upon this same plant, that may help to keep it in check.

(*Basket Items continued on page* 485.)

Editorial Items from the West.

New Texas Cattle Routes.

At Prairie du Chien, on the Upper Mississippi, we noticed extensive cattle yards in course of construction, and, on inquiry, learned that they are intended as resting and feeding yards for cattle brought by railway 400 miles, from Running Water where they cross the Missouri River near the mouth of the Niobrara. Open a map and follow the cattle as they start from Texas over the long route, up to Nebraska and Southern Dakota, feeding and growing as they go, 10 to 15 miles a day. Pastured in Nebraska and Southern Dakota, and sometimes finished off on corn in Nebraska, they are gathered at Niobrara, and started on a railway journey of 674 miles to Chicago—but profit and safety, as well as a humane legal provision, require them to be unloaded for rest and feeding at this point. If destined for Eastern markets, a thousand miles more of railway carries them from Chicago to New York. The map will show four other railway routes running across Iowa from east to west, and two across Minnesota, all extending to Chicago, and all will take part in gathering and transporting these vast herds of cattle, both those originally from Texas, and those fed or raised in Western Nebraska, Dakota, and Wyoming. It will be seen also that half a dozen other railways cross the State of Missouri, extending westward and southwest to the vast plains south of Nebraska, etc.

Cattle from Montana for the East.

Away up the Missouri River, 200 miles above the mouth of the Yellowstone River, we saw a single herd of over 1,000 cattle being slowly driven down the north bank from Western Montana to Bismarck, where (nearly 2,000 miles from New York), they will be shipped over the Northern Pacific R. R., and on eastward via. St. Paul and Chicago. We also saw other large lots coming down by boats, a thousand miles or more from Fort Benton and westward, to Bismarck. All accounts agree that there is to be an immense business done in stock raising—cattle, horses, etc.,—in Western Montana, now that new outlets to Eastern markets are opening. The extent and possibilities of our country can be but faintly appreciated until one has gone over at least a portion of the "Great West"—including that part west of the middle Missouri River.

Flax on Prairies—Mills Wanted.

As we have before noted, many farmers at the west find it profitable to put in flax as a first crop on newly broken prairie. [See September *American Agriculturist*, page 340.] It requires little work, and yields 8 to 12, or more bushels. We found in Central Iowa a number of farmers who raise a good deal of flax on older land, the yield being 12 to 20 bushels of seed per acre. Oil mills will make a home market for the seed, and the more oil-cake there can be sent east, the better it will be for the older farms. Query: Will it not pay enterprising men to start more establishments for using the straw or fibre which is now mainly wasted? It strikes us that here is a good field for occupancy—perhaps for new inventions in the way of working and using the machine-thrashed straw or fibre. There are now, here and there, manufactories which buy this straw at $2 to $4 a ton—that which has been run through the ordinary thrashing machine.

Quick-Growing Trees.

We have seen many vigorous groves, wind-brakes, and fences, in several parts of Iowa, of the quick-growing Soft Maple, Willow, Lombardy Poplar, and Cottonwood. The Maple is raised from seed; the other three from cuttings. Slips six to eight inches long are stuck into the new-broken ground, and grow so rapidly that in the course of four years they give an abundant supply of wood, and, when placed in line, a good fence is left after cutting the upper part off for fuel. We found farmers almost equally divided in their preference for Maple, Poplar, Cottonwood, or Willows. In Benton County, Iowa, there are flourishing Osage Orange Hedges, but north of this the plant is considered uncertain as a general rule—not always.

Some Improved Windmills, or Wind-Engines.

In the March number of the *American Agriculturist*, pages 98-99, we discussed the value of the force of the wind as utilized by the Windmill or Wind-

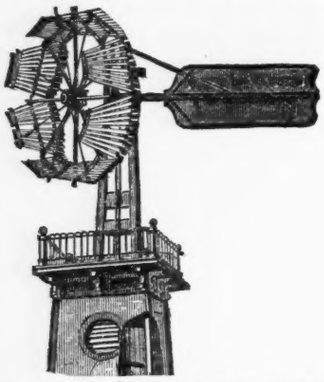


Fig. 1.—THE "HALLADAY" MILL AT REST.

engine. At the same time a number of standard mills were presented, and their differences to some extent pointed out. These did not include all the first-class mills; in fact, we did not even mention the "Halladay" Mill, made by the U. S. Wind Engine and Pump Co., Batavia, Ill., one of the pioneers, as many of our readers know, in the field of improved Windmills in this country. In the present article, without setting forth the importance of windmills in general—as that was given at some length last March—we simply wish to add to the list then commenced, some of the mills that have since come before our notice. The main feature in the "Halladay" Windmill is the arrangement of the regulating gear by a sliding head, so that when the velocity increases the sails present less surface to the wind. The speed of the wind-wheel is dependent on the velocity of the wind, and the angle at which it strikes the sails. In the "Halladay" the exposed surface is diminished without changing the angle, thus keeping the pressure of the wind equally distributed on all sides of the wind-wheel, avoiding strain, and at the same time time being self-regulating.

Figure 1 shows this mill in position when at rest. When the sails are fully spread they take a radial position somewhat as in the wind-wheel shown in figure 2—that of the Eureka Mill, manufactured by the Kewanee Mfg. Co., New York City. This is a "solid wheel" mill, and, like all of its class, has certain points in its favor. It is claimed that ice and sleet do not interfere with their work as much as with the movable mills, which sometimes must be cleaned before they will start. It is a self-regulating mill, and simple in its construction.

The "Champion" Wind-engine is shown in figure 3. The same company, Powell & Douglas, Waukegan, Ill., make an Iron Screw Windmill; it has

Fig. 2.—THE "EUREKA" WINDMILL.

a twisted sail, and works on the same principle as a propeller wheel, in fact, is the "Champion," with corrugated iron instead of wooden slat fans. These mills are self-regulating, and can be set by the *governing weight* to run at any desired speed. An all iron mill is shown in figure 4—the "Iron Duke," made by O. S. Gilbert & Co., Indianapolis, Ind. This is a self-regulating mill, and, for the power it gives, is light, strong, and durable. Each of the mills mentioned has special points of its own, which are set forth at length in the circulars and pamphlets of the several companies, and with the light which these will give upon the subject, those desiring mills are enabled to decide which meets their wants the most fully. The U. S. Windmill Co., for example, makes 17 sizes, ranging all the way from that of one-man power, up to those of 45 horse-power, employed by railroads, etc.

Tim Bunker on Going to the Cities.

MR. EDITOR.—Your call for more "copy" comes right in the pinch of fall harvest, when apples are to be picked, corn to be cut up, pumpkin and squashes gathered, rye to be got in, mangels to be housed, and a dozen other things to be done before Saturday night. This crowding a man, when he is already in a tight spot, is not always convenient. Just now the topic of discussion in Hookertown is the emigration of our farmers to the cities and villages. It has been up in the Farmer's Club, the women have talked it over in the Sewing Society,

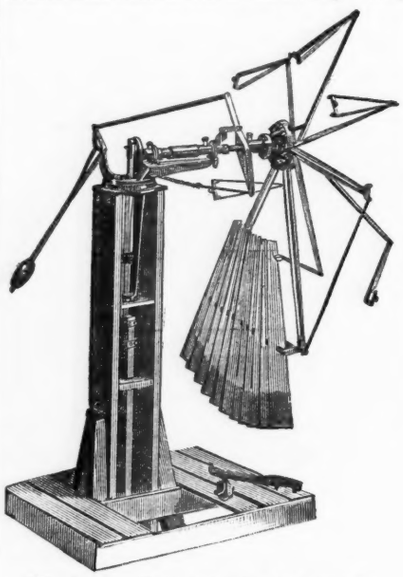


Fig. 3.—THE "CHAMPION" WIND ENGINE.

and Mr. Spooner has preached a sermon for the times in which, Seth Twiggs says, he gave "the oneasy critters that are itching for city life, fits." It is the town talk, any way, and every body here wants to know what you are going to do about it.

You see, when the "Shadtown Herald" came out with the census statistics of this Commonwealth, it came upon us like a thunderbolt, that the farms had lost over 12,000 people, and the cities and villages had gained 88,000 in the last ten years. There were the figures in black and white, put down over against every town in the State, and there was no getting away from the ugly facts. A meeting of the Farmer's Club was called right off, and the assembled wisdom of Hookertown freed its mind. Deacon Smith said he felt a good deal discouraged at the result, he said he had been hoping that the agricultural fairs, which are held now in every county in the State, the Farmers' Clubs, which are numerous, and the greatly increased circulation of agricultural papers would stop this depopulation of the rural districts, and turn the tide in their favor; but it has not been done. The show was worse for the farms than in any previous census, and he hardly knew what to make of it.

Jake Frink said, "the Deacon need not trouble himself to make anything out. It was already made, and we might as well look the thing in the face. I've thought on't considerable, and guess I see thro' it. Laziness is at the bottom on't you may depend. My Kier has gone off to the city, and all his folks. Ye see he got tired o' raisin corn and potatoes on the old farm and married the widder, and was off to the Whiteoaks, 'cause he thought it was easier to swap horses, and burn charcoal, than to stay at home, and airn his bread by the sweat of his brow. It warn't long before he got tuckered out with carting coal, and moved into Shadtown, and opened an oyster saloon. The business hain't never paid and never will. Fact is, laziness don't pay anywhere that I know of. We may change the place, but we don't git rid of the pain by gwine off into the city."

Seth Twiggs emptied the ashes from his second pipe, and said, he was glad to hear so much good sense from his neighbor Frink. "But I rather think, judging from the looks of some farms in this neighborhood, there is considerable laziness that has not emigrated. He guessed the young men had been lectured too much on the use of tobacco and on the sin of raisin it. It was one of the few payin crops, and when the ministers and the deacons, and the moral reformers came out agin it, as a crying evil, he did not wonder that some of them shut up their tobacco barns, and started for the city, where they don't trouble themselves about a man's morals, if he only paid his taxes and pew rent. For his part he had always smoked ever since he was a boy, and tho' it was a nasty and expensive habit, he thought some other things were worse. I've suffered a good deal of persecution for it, and some times thought I should emigrate if folks did n't let me alone. My wife hetchels me by night; the boys hail me in the street as a walking coalpit. Tim Bunker always puts a pipe in my mouth when he writes, and Mr. Spooner preaches about 'fleshy lusts warring against the soul,' by which he means me, and he might jest as well call out my name in meetin. I guess I shall have to go to the city myself, where they can smoke in the streets, and in the cars, and nobody make a fuss about it. Fact is, Hookertown is gettin too narrer."

"Jess so," said Geo. Washington Tucker, "It's narrerer than the edge of a knife. A feller can't drink a glass of lager or a little whiskey, but what a smellin committee is around after him, made up of deacons and Dorcas Society women, who want to know where he got his likker, and use him as a witness against the poor man who is trying to get an honest living, by selling a little harmless beer. Talk about Hookertown 's being narrer, is n't the State narrer? Did n't the legislater last session pass a law defining lager and other malt liquors as intoxicating drinks! Ye see folks won't stand sumptuary laws, and they are getting out of it. I'd go myself to-day, if I had anything to go with."

Mr. Spooner, who talks about as well on agriculture, as he does on religion, took a more cheerful view of the situation. He said "the fact of a decrease of the population in the farming districts was not to be disputed. It was not peculiar to Connecticut, but was true of all the older States, as far west as Ohio. The population of the farms

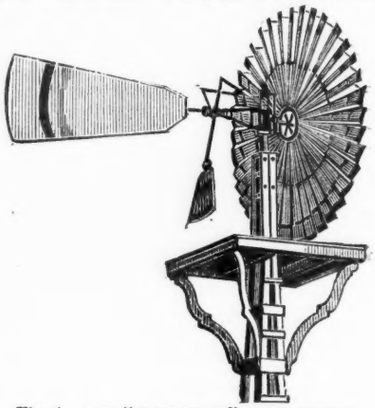


Fig. 4.—THE "IRON DUKE" WIND ENGINE.

were not all drawn to the cities, but to the virgin soils of the West and to the sea. Morals and legislation upon questions of morals he thought had little, or nothing, to do with it. Our agricul-

ture was in a transition state, from the old style farming of fifty years ago, to the new ideas of the present generation. A great deal of new light has broken in upon the art of cultivating the soil, and farmers are studying, and learning, the science of their business. Some are apt scholars, and know what tools, manures, and stock are needed to make the particular farm they cultivate, pay. These men have no thought of going to the city, or going West. Their skill and labor are as well rewarded here as they would be at any place. They are fairly prosperous and enjoy life. Others are slow in learning, cling to the old methods, raise crops in competition with the new lands of the West, and get discouraged, and go into other business. Better times will come a while hence, when we get over the transition state, and understand better what crops will pay, and learn how to live well upon the limited income upon the farm."

These remarks of my neighbors show the drift of public opinion upon the great change that has come over our farming towns. The tide of population is away from the farm, in every agricultural parish in the State. Seventy-five of our rural towns, show a loss of twelve thousand in ten years. This is by no means an unmixed evil. It does not prove a decline in wealth, or in morals. If a farmer who understands his business, buys up the land of his thriftless neighbor who is doing a losing business, the Commonwealth gains rather than loses. The acres, that did not pay under poor husbandry, will be made profitable under good, and add to the food supply of the State. An increasing, thrifty city and village population means a larger number of consumers, and better prices for the milk, butter, veal, lambs, pigs, poultry, eggs, and vegetables, and fruits, raised upon the neighboring farms. The man who loses money in farming, for want of skill, may sell his labor at a profit in the city or village, and be a gainer by the change. With this fact of a declining population in the agricultural towns we have another, that farms in this State have appreciated in value, averaging seven per cent. Let us give thanks and take courage.

Hookertown, Ct., Oct. 10, 1880. } Yours to command, TIMOTHY BUNKER, Esq.

Notes from the Pines.

When I wrote my last "Notes from the Pines," little did I suppose that the next "Notes" would be from among the "Pines" on the other side of the Atlantic. Here the most frequent Pines are usually called the Scotch Fir, though it is not a Fir at all. I do not propose to give, in these "Notes," an account of travel, which would be quite out of place, but merely note some horticultural matters that strike an American as different from those he is accustomed to in his own country. A brief sketch of

The Route Travelled

will indicate the localities referred to. After landing at Queenstown and reaching Cork, we went to the famed Lakes of Killarney, by way of Bantry and Glengariff. Our route took us through one of the wildest parts of Ireland. Through North Wales to Chester, to Liverpool, and thence to the venerable University town of Oxford, where these Notes are dated. Glengariff is almost at the extreme south-eastern part of Ireland, on the Bay of Bantry and a popular watering place. Here we found

Fuchsias in Hedges.

In front of the hotel was a long hedge of what I took to be *Fuchsia coccinea*, one part of which was fully 8 feet high, the principal portion being kept at about 3 feet. This, with its myriads of pendulous, bright scarlet flowers, was a horticultural exhibition of itself. The Blue Passion-flower ran in among the Ivy which covered the front of the hotel, and displayed its flowers against the dark-green back-ground with fine effect. All through the mountains, from Glengariff to Killarney, the country was bright with

Furze and Heather,

both of which were in full bloom, the bright yellow of the Furze contrasting finely with the rose-purple tints of at least two species of Heath. The Furze or Whin (*Ulex Europœus*), is much used for fencing all through this portion of Ireland. A low ridge of earth is thrown up, or a wall of turf (sods) is built, and Furze planted upon the top. This plant is a mass of thorns, and soon forms a complete barrier. It has its disadvantages, however, for, like all live fences, if neglected for a few years it becomes a shapeless and unsightly mass. Besides this, it is apt to become a weed, and spreading, probably by seed, establishes itself in the fields and, if not eradicated while young, will soon take possession. I noticed several pastures rendered useless from this cause. What a country this is for

Broad-Leaved Evergreens!

Of course the Holly and Ivy are to be seen everywhere, the Ivy just coming into bloom, while the Bay Laurel, Cherry Laurel, and a host of others that must be kept under glass at home, are here among the common out-of-door shrubs.

In front of our window at Killarney was a specimen of *Aurucaria intricatus*, the "Monkey Puzzler," at least 20 feet high, and of the most perfect form, not a single one of its branches missing to mar the formal arrangement. The American is frequently and unfavorably struck by the

Paucity of Vegetables

in this country. Cabbages and Potatoes are served everywhere; besides these, Cauliflowers, String Beans, Scarlet Runners, and Vegetable Marrow, are all that I have thus far met with at the best or the poorest hotels. The Scarlet Runner, which we cultivate sometimes as an ornamental vine, is here common in gardens, but it is a sad substitute for our delicious Limas. Vegetable Marrow, rarely seen with us, is a long white squash; it has very little character of its own, but is an excellent medium for butter or white sauce. I have eaten overgrown cucumbers dressed in the same manner, and think them quite as good. This country seems to be the home of all forms and varieties of the Cabbage; Kales, Cauliflower, Brussels Sprouts, Collards, besides the heading forms, are abundant in many gardens, and in the moist climate reach a perfection not known with us. Indeed, common Cabbage is so tender and marrow-like, that though it was served as Cabbage, it was so different from the same thing at home that, supposing some mistake had been made, I inquired and learned that it was merely "common Cabbage."....One thing that struck me particularly, is the almost entire

Absence of Orchards.

In the long journey from Cork to Dublin and Liverpool, and thence to this place, within about 50 miles of London, I do not think more than a hundred or two apple trees were seen, and these in such small clumps that they could hardly be called orchards. Upon inquiry as to this absence of orchards, the reason assigned was, that the land was rented, and the tenants did not care to plant trees upon land which they might be obliged to give up at any time. This must be a very poor apple year, as in the above-named cities I saw in the fruit stores and on the street the most wretched fruit, gnarled, specked, and so poor that our farmers would reject them even for cider-making. In the abundance of our own crop it is probable that a much larger amount will be shipped than ever before. Plums seem to be the most abundant fruit, and often very good; have seen no very fine pears, but it is probably early as yet. Grapes, though mainly raised under glass, are much cheaper than "hot-house grapes" are with us. Women in several cases brought them to the car windows, offering bunches at a shilling each (24 cents), which would cost 50 to 75 cents at the Broadway fruit stores.... One often sees a small or sometimes a large patch of

Osiers, or Basket Willows,

and baskets that are evidently home-made are very common. The great variety of baskets and hampers is very interesting; there are large and small hampers, round, oval, and square hampers, some are shallow and others deep; hampers with covers and without. Hampers for lunches, for game, and all sorts of produce, up to enormous things too heavy, when empty, for one man to lift. All these are not home-made, though a large share is produced by the farmers or gardeners. Whether this is an example that might be profitably followed by us, I much doubt. The time required by an expert workman must be so great, that with us a hamper would be a costly affair. Besides this, basket-making is a "puttering" work, and of a kind that our people do not take to kindly. A boy with two or three pieces, as may be, of board, and some laths or slats, will knock together in a few minutes a crate which will answer every purpose of a hamper that must require some hours to make.

The Oxford Botanical Garden

is not very large, but under the direction of Prof. M. A. Lawson, is in excellent keeping. It is interesting on account of its antiquity; and what, in this interesting town, is not old?—even the hotel where I write was built before Capt. C. Columbus took that memorable voyage! This is the oldest Botanical Garden in England, if not the oldest in existence. It was completed in 1633, it being founded by the Earl of Danby for "the improvement of the faculty of medicine." Its gateway, containing statues of the 1st and 2d Charles, was designed by the celebrated Inigo Jones, and was paid for from a fine which one Anthony Wood had to pay for indulging in a libel upon the Earl of Clarendon. It was pleasant to meet with many of our familiar American plants, conspicuous among which was our Poke or Pigeon-berry. Another home plant was our Cardinal Flower (*Lobelia cardinalis*), the flowers of which were much larger than at home, but not of such an intense scarlet.

Those who read of Oxford as a University town, have little idea of what the term expresses. It has

Over Thirty Colleges and Halls,

each of which, with its chapel, quadrangles, etc., is larger than any American College, Harvard and Yale, perhaps, excepted, and dating from the first century all the way down, there being but two or three that are not over 300 years old. One could devote weeks to the place, and then not see all of interest it contains. Having only parts of two days here, but a few out of the many Colleges could be glanced at; the matter of interest about these, that can be properly mentioned here, are but few. One of the noted points is "Addison's Walk," in the grounds of Magdalen College. This name, by the way, I did not at first understand, when given the local pronunciation, which is as if it were spelled *maudlin;* it is so called by those belonging to the College, as well as by the towns-people. The "Walk" is a well shaded avenue, with very irregularly planted trees, and with its abundant underbrush has a rather neglected appearance. The fact that it was the favorite resort of the author of the "Spectator" has given it a celebrity which would not otherwise attach to it. For me the most interesting thing about the walk was the view it allowed of a large herd of deer which were inclosed near by. While the walls of most of these old structures are abundantly clothed with Ivy, one is often reminded of home by coming upon the

Virginia and Trumpet Creepers,

the one putting on autumn tints which but poorly represent the beauty of the vine in its own country; the other is still showing a profusion of its scarlet blooms, which appear to be brightened in brilliancy as they are seen against the dark green of the Ivy. In the quadrangles there is generally a square of well-kept grass, looking as turf only can in this favorable climate; its brightness and freshness seeming to be out of place when surrounded on all sides by tall time-stained and crumbling buildings. If any attempts have been made at ornamental planting in these courts, we did not fall upon them.

Enriching Poor Lands.—There are three principal methods of rapidly increasing the supply of plant food in any soil: By feeding concentrated foods upon the land, as oil cake, cotton-seed cake, etc.; by the application of barn-yard manure, and the use of artificial fertilizers. Which of these three methods is to be adopted in any given case must be determined by the many conditions and circumstances that surround it. It may be that the feeding of sheep with decorticated cotton-seed cake upon a poor pasture may be the quickest and best method of enriching the land. In other cases the purchase and application of barn-yard manure may

be the most profitable. When it comes to the artificial fertilizers, it should be borne in mind that their true office is to supply quickly one or two ingredients that may be deficient in the soil—when these are known their use is to be recommended.

Editorial Correspondence.

Up the Missouri.

Having made many tours of agricultural study and observation during the last thirty years—often through and through such States as Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, Minnesota, and frequently through nearly every other State—we thought we knew the whole country between Canada and the Gulf of Mexico, the Atlantic Ocean and the Rocky Mountains. But not quite so. We had not been up the Missouri River, over 2,500 miles above its entrance into the Mississippi at St. Louis. In our notes for the August *American Agriculturist* it was intimated that an American was not sufficiently educated to go to Europe until he had journeyed a thousand miles west from Chicago, and two or three hundred miles down through Colorado, taking in the mining regions; and then 750 to 1,000 miles northwest from Chicago, and down the Great Lakes. Now we add: Nor until he has been up the Missouri River 2,800 miles to Fort Benton, and also at least 200 or 300 miles up the Yellowstone. These trips can be safely and comfortably made at moderate expense, especially in June and July. Steamers run from Sioux City to Fort Benton (over 1,500 miles) and carry passengers the round trip for $75 to $85, or for $50 one way, board included. Sioux City is easily reached by 550 miles of railroad from Chicago. In a year or two a journey to and through the wonderful Yellowstone Park, will be an easy pleasure trip. Exploring the Park portion is as yet rather tedious and expensive. A railroad already extends hundreds of miles north of Ogden in Utah. The Northern Pacific Railroad is built west of Bismarck almost to the Yellowstone, and will reach it the coming winter, or early in the spring, and push on up its valley. So there will soon be a great circuit tour, out over the Union Pacific to Ogden, northward to the Northern Pacific Railroad, and back through the Yellowstone Valley, through the great wheat region east of Bismarck, the Red River Valley, and on down through Minnesota and Wisconsin to Chicago, or via Duluth and the Great Lakes to Buffalo. But one need not wait for that even, to take a trip up the Missouri from Bismarck, or even from Sioux City. Bismarck is 857 miles from Chicago, via St. Paul, and some 750 miles above Sioux City by river. If saving time is an object, one can take the river at Bismarck. If time allows, the river route up from Sioux City to Bismarck—occupying anywhere from 10 to 15 days going up, much less going down—may well be taken to see the country and scenery. The usual single railway fare from Chicago to Bismarck is $33; time, two days and nights.

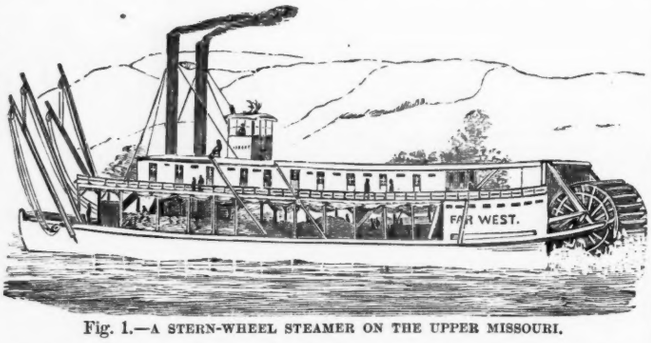


Fig. 1.—A STERN-WHEEL STEAMER ON THE UPPER MISSOURI.

Travelling on the Missouri River,

will be a novelty to Eastern people. The stream for 2,300 miles from its mouth to the Yellowstone, is usually very broad, with shallow water. Sometimes it contracts to a fourth of a mile in width, and at others spreads out a mile or more. The bed abounds in bars of quick-sand, partly above and partly below the surface. See figs. 3 and 4. The *navigable* channel is seldom over ten feet deep, often only two to three feet deep, and usually but a few rods wide, that is between the June and July rise and the freezing up in autumn. The melting snows from the mountains greatly enlarge the stream in depth and width during early summer, and navigation is not difficult. But the channel is very changeable, so much so that a steamer often runs upon a sand-bar in the very place where it went through deep water on its previous passage. At this season (last of August) we have only averaged 65 miles a day, in coming up, and have been fast on sand-bars a dozen times a day, more or less—at one time 13 hours on a single bar, and have "tied up" each night. But this is unusually slow, as the river is very low and the steamer too heavily laden for the water. In higher water much greater speed is made.

Our Steamer—and How it Gets on.

The constant performances of our craft, in the way of getting forward, or backward, or sideways, are "as good as a play." The almost ceaseless call of the man at the bow, as he tests the depth of the current with a marked pole, "f-o-u-r fee-eet," "s-i-x fe-eet, 5 ft., 3½ ft., 2½ ft., 2 ft., 7 ft., n-o-o bottom" (if it is over 8 feet), and so on, each call repeated to the pilot by the man on the upper deck, does not become monotonous, for each passenger is always guessing silently, if not aloud, what will be the next call, and whether we will not bump upon a sand-bar. If we do, the "sparring off," and the way it is done, furnish further entertainment. Enclosed, we send an original pencil sketch of the outline of a Missouri River Steamboat upon which we have passed many days. [The accompanying engravings are made from Mr. Judd's sketches.] All the upper works rest upon a strong flat-bottomed hull, some 4½ feet deep, but sinking in the water only 20 inches or so. Length of steamer about 200 feet; width 45 feet. The hight above water is 23 feet, besides the pilot-house. With so light a hold on the water the boat is an easy prey to the high prairie winds of autumn. It is propelled by the great stern wheel with much force against the rapid current, which often runs 6 to 10 miles an hour.

"Sparring Off."

The bow or front of the boat is loaded 5 to 10 inches deeper than the stern, so that when a sand-bar is struck it can be more easily backed off by reversing the wheel. But it very frequently goes fast on. Then out come one or more "spars." These are logs, 30 to 40 feet long and a foot in diameter, with blunt bottoms to press against the sand or mud, and heavy iron spikes in the lower end. Each spar is hung upon a rope, and raised or lowered by steam force. Powerful ropes run through pulley blocks at the tops of the spars, and around other sets of pulleys fastened upon the sides of the bow. By dropping the end of a spar into the water, and applying the steam power, by means of the capstan, or "nigger head" as they call it, the boat is shoved to one side or the other, or backward. Or if far on the bar, and there is deep water ahead, a spar on each side may lift it over. So some of our progress is really made on "stilts." Owing to the frequent changes of sand-bars, and their uncertain location, the pilots often have to try two, three, four, or more apparent channels, and back out, before finding one that the boat can get through (as shown in figure 4).

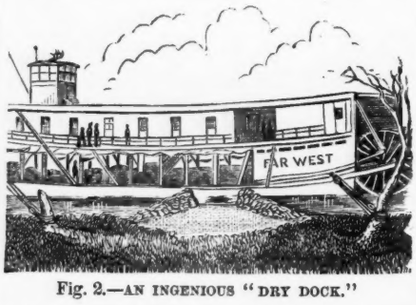


Fig. 2.—AN INGENIOUS "DRY DOCK."

An Extempore "Dry Dock."

Our steamer chanced to strike a "snag" (a sunken tree), which opened a rent in her side near the bottom of the perpendicular hull, and this a thousand miles from any repairing dock! Did they give up in despair? Not at all. The boat was run upon a shelving sand bottom near the shore; powerful ropes, fore and aft, were run out to trees, and by steam power the hull was drawn sidewise firmly into the sand (fig. 2). Stones were gathered, and two walls built from the boat to the dry land, one above and one below the fracture. These walls were made water-tight by scores of barrels of mud and sand, and the water was then taken out from between the stone walls, leaving the broken place exposed. It was speedily replanked and caulked, the boat sparred off into deeper water, and on we went, with only a brief detention. These hardy, ingenious, wide-a-wake western navigators are full of resources, and one soon comes to trust to their meeting and conquering any and every difficulty.

Safe and Comfortable Travelling.

Despite the snags, and sand-bars, and the remoteness of the Upper Missouri, travelling is quite safe. Snags are very seldom struck, and then hardly ever seriously. As for these and other annoyances, the enterprizing western men are sure to find a way out, and if worst should come to worst, the river is seldom so deep that one could not wade out to the shore or to a dry sand-bar—a safety not found on deeper water. The state-rooms are comfortable on the larger and newer boats; the fare is good, substantial—in fact good enough so far as we have found it. Those who cannot cheerfully put up with a little inconvenience better not travel anywhere.

The Channel is very Crooked.

A straight-a-way run of 2 or 3 miles is the exception. The river takes great curves, often at sharp angles, bending back almost upon itself at times. At one place, after going 45 miles, we were only three miles across the neck from where we had passed several hours before. Usually there is, on one side or the other, often on both, a "bottom," varying from a few feet to miles in width (fig. 4). This is a bed of clay and sand and black deposit, 4 to 15 feet above low water, and just above ordinary high water. Where it has been undisturbed a few years, it is often covered with Cottonwood trees, which increase from half to three-fourths of a inch in diameter yearly. But the channel is ever changing—a freshet, the lodging of a floating tree, or other slight cause, will start the water off in a new direction, and so, on one side or the other, the edges of the bottom lands are ever wearing away, and the washed out soil is deposited in the slower current. The water is of course always filled with mud. A tumbler of it standing until settled, will show fully an eighth of an inch deposit. It is a darkish-clay color. The water from the Yellowstone River, we noticed in passing its mouth, is of a slightly reddish or *yellowish* mud—hence the name of that river. The bottom lands are very fertile, and when high enough to be safe against prospective washing out, as is often the case, they furnish most excellent farm lands. On the north side of the Missouri, from the Yellowstone to Wolf River (180 miles, or 90 to 100 miles by land), we should say, at a rough guessing estimate, there are a million acres of fine bottom lands—perhaps more—and there are other millions of acres along the Upper Missouri.—The climate between latitute 47° and 49° though cold in winter, is felt less severely than in lower

Fig. 3.—THE CROOKED MISSOURI RIVER.

countries, and many farm crops grow well. At Berthold Agency, latitude 47° 30', wheat has been grown successfully; while this is one of the leading crops around Winnipeg, which is above lat 50°.

Bench and Uplands.

Back of the "bottoms," a few feet higher, are the "bench lands," extending to the foot of the "bluffs." Sometimes they are narrow strips a few feet wide, oftener entirely absent; sometimes half a mile to a mile or more in width; and, like the bottoms, are sometimes on one side of the stream,

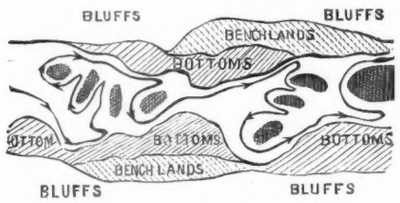


Fig. 4.—SPECIMENS OF MISSOURI SAND-BARS, ETC., AND THE STEAMER'S COURSE THROUGH THEM.

sometimes on the other—seldom on both sides at the same point. These are similar to the average prairie soil, and where they exist in sufficient width, will be excellent localities for farms—for grain and corn especially. The adjacent bottoms supply plenty of grass, and when broken yield corn, potatoes, and indeed all crops suited to the latitude. Back of the bottoms and bench lands where they exist, are the "bluffs" forming the sides of the general river valley, which varies in width, between the bluffs, from half a mile to two, five, eight, and in one place to fifteen or twenty miles, averaging, we should guess, 2 miles, for 600 miles above Bismarck. These are mainly sloping irregular banks, rising 30 to 100 or more feet above the river, the sides cut into dells, or cut down by water and frost, with now and then little valleys running up and out at the top, filled with trees—in which case they are called "Coulies." The bluffs are, however, cut into all sorts of regular and irregular forms, often weird and fantastic, frequently of great beauty, and presenting an ever-changing scenery that gives a charm to one's journey. From the top of the bluffs—which are seldom "bluffs" as that term is usually understood—the country runs back as a level, treeless prairie, more or less rolling in many places; in others broken into hills and hollows, and here and there intersected by the wide "bottoms" of rivers or creeks that flow into the Missouri. A good map will show many of these affluents, some of them of great length, as the Little Missouri, the Milk River, the Big, Little, and Lower Muddy, the Cheyenne, etc., besides the large Yellowstone.

"Bad Lands."

Strictly speaking, we suppose this term applies to those lands which are very hilly, and covered with a dark-colored, finely-broken stone, allowing very little vegetation. It is here, apparently, applied to all land not fit for cultivation, whether too sandy, too dry, or too alkaline. Such lands are frequent, back from the river, along most of the Upper Missouri, but there is much good land also that will in due time, and not very far distant, come into cultivation. The "bottoms" and the "bench lands" along the Missouri and its feeding streams, will afford good land to sustain a population of hundreds of thousands, not to say millions.

Among the Indians.

We write this, surrounded by many thousands of nearly uncivilized Indians, including 1,500 to 2,000 "hostiles," who have come from Sitting Bull's bands, just over the line in British Territory, on a foraging excursion. These all live in Lodges, or "tepees," that is, conical tents covered with tanned Buffalo skins, the hair removed, and sewed together. It occurs to us that our readers will be interested in some brief general notes on the aborigines....For 250 years the Indians have had a certain relation to the agriculture of our country. The ever increasing demand for new land to cultivate has led to a continuous struggle for obtaining it, by fair means or by foul, from the aborigines who claimed ownership and were in possession. The red line of war and massacre, stretching from Canada to the Gulf of Mexico has gradually moved westward, sweeping over nearly the entire country, for two centuries. Many pioneer settlers on the frontier have worked with rifle always at hand for protection, and many have fallen by savage hands.

To-day all this is about Over.

During the past few years almost the entire Indian population has been gathered upon Reservations, and nearly all of them are now peacefully occupying their limited areas. These reservations, marked upon an ordinary map of the whole country show only as small spots, with three or four exceptions—the Indian territory south of Kansas, the Sioux territory in western Dakota, and the one where we now write, viz., that between the Upper Missouri and Canada, including some land south of the river. Leaving out Alaska, the total amount of land thus reserved was reported in 1879 as 258,600 square miles, and the number of Indians of all ages, 252,897. These Indians are grouped under the direction of about 70 government agencies. Over three-fifths of the lands reserved are at three points: in the Southern Indian Territory, 64,214 sq. miles; the Sioux reservation in western Dakota, 49,176 sq. miles, and the Fort Peck and Black Feet reserve in northern Montana, 41,330 sq. miles—in all three 154,620 sq. miles, leaving but 104,000 sq. miles for all other lands allowed to the aborigines, and the recent cession of the Ute territory in Colorado reduces this amount. The total land now even nominally occupied or allotted to the entire Indian tribes is 16,000 sq. miles less than the single State of Texas—or about equalling Montana and Idaho.

Indian Agriculture in the Future.

The present policy of the Government, and of all interested in the welfare of the Indians, is to as rapidly as possible get them to give up the chase, and devote themselves to the cultivation of the soil and stock raising.* And we are happy to report that there is a good prospect that the desired object will be obtained ultimately, if the present policy be carefully and judiciously persisted in for a few years. For example, away up here, 200 miles above the mouth of the Yellowstone, on the north side of the Missouri, we find some 800 Indian families engaged in cultivating their allotments of land, growing as fine potatoes as we have ever seen, very good corn, oats, pumpkins, etc., using all the land that could possibly be broken and seed obtained for it. In a grand Council with the Chiefs and warriors here, an earnest wish was expressed for more land ("much big land"), more implements and more seed. And this too among the most uncultured tribes, many of whom were engaged in the fighting of 1876 when General Custer was slain.

A Most Worthy Consummation

it will surely be, if, as is possible, during the present decade, the entire aborigines of the whole country are settled down to actual agriculture, each on his own farm, deeded to him individually. We can surely grant this. Allowing five to a family, and 160 acres to each family, no more land would be needed than is comprised in less than one quarter of the single State of Illinois or of Iowa, for all the Indians of the country.

PARTLY CORRECTIVE.—In the advance copy of Sept. number, just received, we notice two errors in the last paragraph of Notes, on page 340, which was sent by *telegraph*—an error of the operator, doubtless. We wrote that the wheat crop of Minnesota was unusually fine in the north-*west*. There is comparatively little wheat yet grown in the north-*east* part of this State. Again, in speaking of the Americans and foreigners settling on the N. P. R. R. lands, we wrote the "*former* probably predominating"—not *foreigners*, as the telegraph made it. This is not important; but it is a matter of interest that, of the new settlers along that road, a large number are from the older States. Foreigners, we judge, go more largely to Western Minnesota, to Dakota, and Nebraska, except where they cross the line to Winnipeg, as many English emigrants do to keep under the same government as at home.

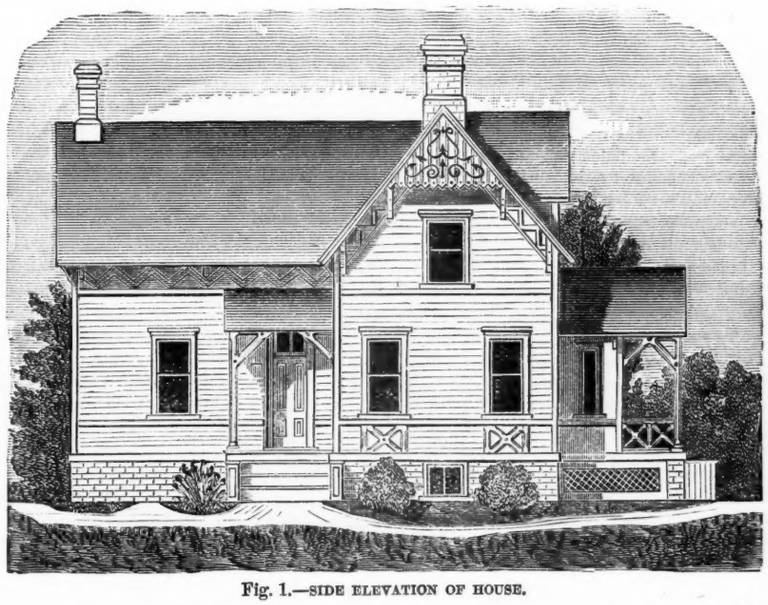


Fig. 1.—SIDE ELEVATION OF HOUSE.

A Convenient Cottage, Costing $1,000.

BY S. B. REED, ARCHITECT.

These plans are for a dwelling similar in character to those published in the September number of the *American Agriculturist*. The divisions and general arrangements are changed, and the side entrances reversed, adapting it to locations having an opposite approach.....**Exterior.**—Two elevations are given. The sides (fig. 1) are 34½ feet long, of which 16 feet forms an end to the front, or main part. The rear or wing portion is carried up to the full hight of the front, and has the same general finish. The front (figure 2), has a breadth of 25 feet, with foundations showing 2 feet above ground. The openings and other parts are symmetrically arranged, and the whole tastefully finished. The principal roofs have a pitch of 14 inches to a foot, giving them unusual prominence. The chimneys pass through the ridges, where they appear to the best advantage. The two porches are sufficiently large to protect the entrances; the front one is furnished with permanent seats at either side.....**Cellar** (figure 3).—Hight 6½ feet. In this climate it is necessary for all trench foundation walls to

* The writer only consented to serve on the Board of Indian Commissioners, because urgently solicited to do so for the aid he could give in this special direction.

extend into the earth from two to three feet to insure them against destruction from frost. If we set our building two feet above ground, and houses in the country should never be less for healthfulness, such foundations, including the portions below and above ground will measure from four to five feet in hight. For the small expense of the excavation,

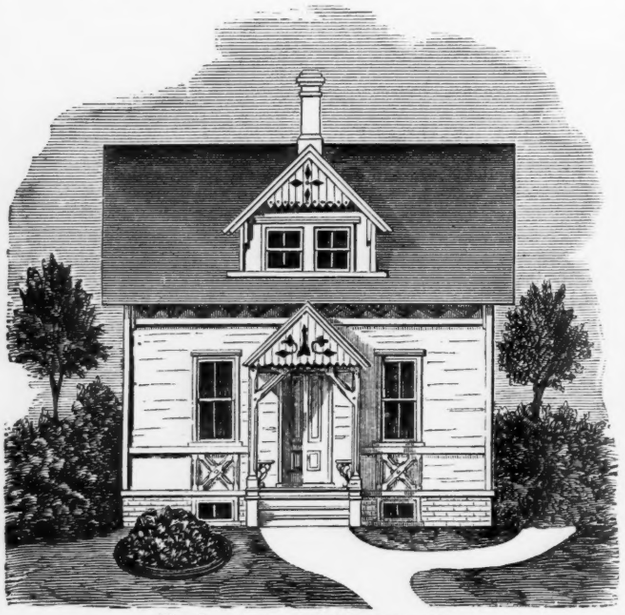


Fig. 2.—FRONT ELEVATION OF HOUSE.

and a few additional bottom courses of rough masonry, all such foundation-walls may be utilized to better advantage, and a valuable cellar will be obtained. With these facts in mind, it will be seen that there is no real economy in trench foundations, especially where it is possible to have a cellar. In this plan the cellar extends under the entire building. Six small windows give light to all parts, and an outside door opens to the area under the rear porch. A flight of stairs lead directly to the kitchen.....**First Story** (figure 4).—Hight of ceiling, nine feet. A Parlor, a Living-room, and

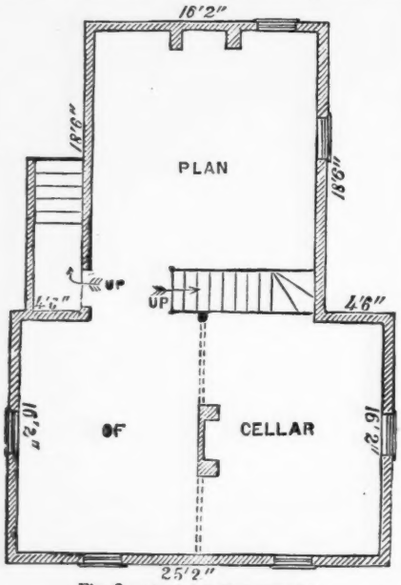


Fig. 3.—PLAN OF THE CELLAR.

Kitchen, each of nearly equal dimensions, form the principal divisions of this story. The two front rooms are entered from the front porch through the vestibule. Each has out-looks to the front and one side. The Living-room is also accessible from the rear porch through the entry. A fire-place is put between the Parlor and Living-room, which may be made to face either way, and suited to the use of a fire-place heater. The latter may be so arranged as to communicate heat to each of the four rooms in the main part. The Kitchen is a pleasant and convenient apartment; it has windows in three of its sides, a large open fire-place suited to the use of a range, two closets and a sink, and communication directly with the rear entry and the cellar stairs. The Stairs to the second story lead from the entry, with platform and winders near the top.....

Second Story (figure 5).—Hight of ceiling, four and one half feet at the plates, and following the rafters to the full hight of eight feet. There is a hall, two chambers, two bedrooms, and two closets in this story. Each room has good-sized windows, and adjoins chimney flues, giving opportunity for the use of stoves if required. The Hall has a small window just above the stair platform, giving light to the hall above and the entry below. Inquiry is sometimes made as to "what constitutes the difference between a chamber and a bedroom." The term "chamber" is applied to such sleeping apartments as will contain a full suit of chamber furniture, consisting usually of seven pieces; and "bedroom" to such as have only space for a partial suit of perhaps three pieces.....**Construction.**—The foundations are of hard brick and mortar, eight inches thick. The frame of sawed timber; siding, of "Novelty" pattern pine; roofs, of sawed shingles; floors, of spruce T. & G. The windows are glazed with second quality French glass; doors of pine, four-panelled and molded; plastering, hard finished. The casings inside, of white pine, and in the front rooms molded. The mantel shelves are of ash plank, supported on neat trusses. Painting, two coats.....The **Estimate** for the average cost of this building is given below:

75 yards Excavation, at 25c. per yard		$ 18 75
12,000 Brick foundation and chimney, laid, $12 per M		144 00
475 yards Plastering, at 20c. per yard		95 00
2,150 ft. Timber, at $15 per M		32 25
2 Sills 4x7 in. 25 ft. long.	1 Ridge 2x7 in. 31 ft. long.	
3 Sills 4x7 in. 16 ft. long.	1 Ridge 2x7 in. 25 ft. long.	
2 Sills, 4x7 in. 19 ft. long	38 Beams 2x6 in. 16 ft. long.	
2 Plates 4x6 in. 25 ft. long.	4 Beams 2x7 in. 12 ft. long.	
2 Plates 4x6 in. 19 ft long.	2 Valleys 2x7 16 ft. long.	
8 Posts 4x6 in. 14 ft long.		
250 Wall Strips, at 12c. each		30 00
30 Joists, at 15c. each		4 50
128 Siding, 9½ in., at 28c. each		35 84
Cornice materials		15 00
300 Shingling Lath, at 6c. each		18 00
45 bunches Shingles, at $1.25 each		56 25
60 ft. Tin Valleys, at 8c. per ft.		4 80
152 Flooring (inside), 9 in. wide, at 28c. each		42 56
30 Flooring (outside), 4½ in. wide, at 15c. each		4 50
6 Cellar Windows, at $3 each complete		18 00
14 plain Windows, at $5.50 each complete		77 00
18 Doors, at $5 each		90 00
2 Porches, $25; 2 Stairs, $16		41 00
5 Mantel Shelves $10; Closet finish, $6		16 00
Nails, Pump, and Sink, $25; Painting $75		100 00
Carting, $15; Carpenters' labor, $125		140 00
Incidentals		16 55
Total		$1,000 00

Hereford Cattle.—Enterprising breeders and dealers are, it seems, taking advantage of the great favor in which this excellent breed of cattle is held, to buy in England almost everything that is fit to import and has a fair pedigree. One breeder, Mr. T. L. Miller, is about landing some 109 head of Herefords. This "boom" in favor of the Herefords is not to be wondered at. They are one of the ancient *races* of Great Britain, of which the Devon is another, differing from the more artificial *breeds* in possessing a greater permanency of type. Their white faces and strips on belly and shoulders are, though very noticeable, a cultivated feature, to a great extent added within the past 100 years. As we now find them, they are exceedingly uniform in their characteristics, grow quickly, are early and profitable feeders, of good weight, excellent handlers, very low set, a little strong in bone, and the cows reputed poor milkers. They are superior to the Shorthorns on poor feed, stand privation, short pasturage, and lack of water better, at least so it is claimed, and hence are great favorites on the Plains. The butchers favor them

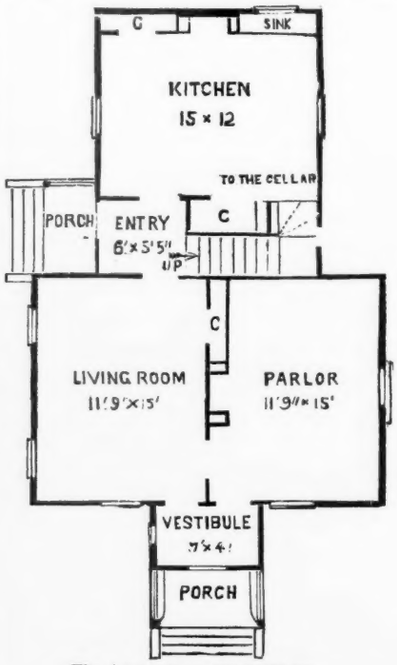


Fig. 4.—PLAN OF FIRST STORY.

because the flesh is well marbled, and cuts up to profit. Their advocates in this country, from Mr. Sotham to Mr. Miller, have been most faithful in presenting their claims as against the Shorthorns, often fairly tiring out the general reader or any one not directly interested. The beasts were not particularly attractive, sold at low prices, had short pedigrees, if any, and were only beef cattle, while their rivals were fashionable, had long pedigrees, were stylish and beautiful, were excellent both for beef and milk, and sold for higher prices than any other breed of cattle by far. Now the tables seem

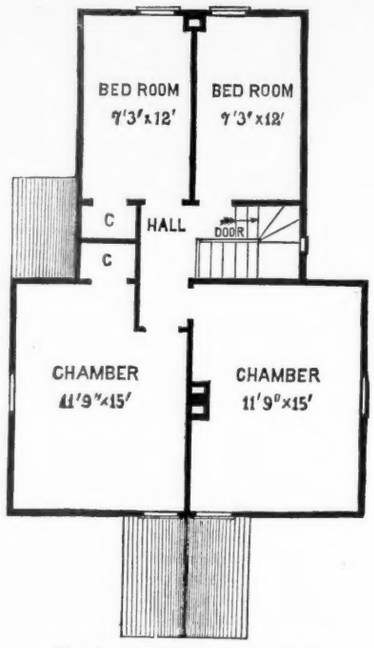


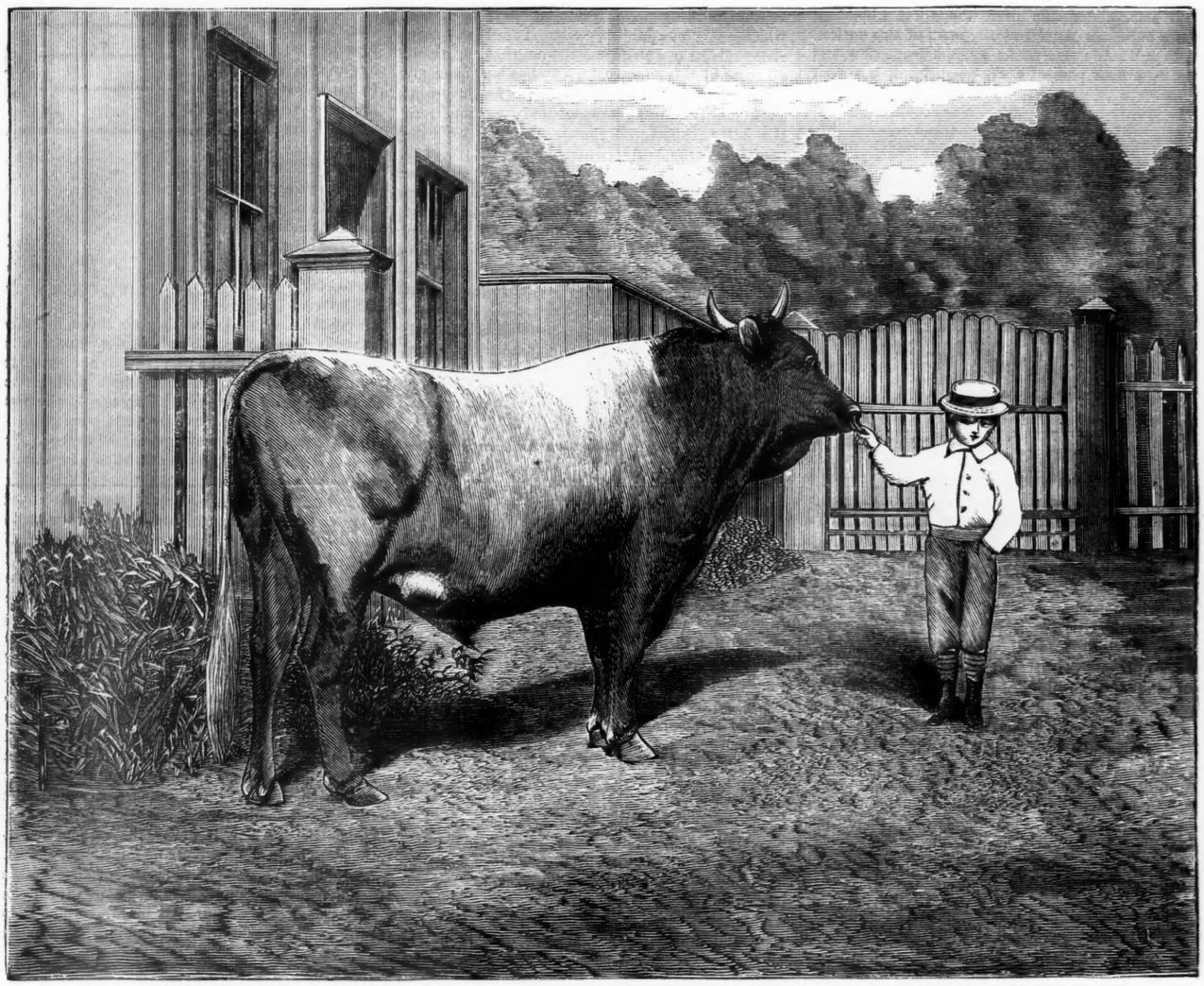
Fig. 5.—PLAN OF SECOND STORY.

to be turning—beef is everything for the far West. Hereford pedigrees are at least sound, while every breeder of Shorthorns is picking all the flaws he can in the pedigrees of every family except the one he breeds himself. Hurrah for the Herefords.

The Jersey Bull "Mercury" (432).

"Mercury" is the only living son of "Jupiter" (93), and "Alphea" (171), he was dropped October 7, 1869, and was bred by Col. R. M. Hoe, of Morrisania. His sire and dam were own brother and sister, the progeny of "Saturn" and "Rhea," who are famous only for having been the progenitors of these two animals, and especially of "Alphea." "Mercury" is a handsome, solid colored animal, as indeed are most of "Alphea's" progeny, and Col. Hoe retained him for his own use, when he sold most of his herd. He subsequently parted with him to his nephew, Mr. Herbert Mead, by whom he has long been used, though repeatedly offered for sale at absurdly low prices. Ten years of service have given him many sons and daughters, and though now eleven years old, he is healthy and vigorous. He was bought last spring by Mr. Wm. Simpson, of West Farms, a near neighbor of Col. Hoe's, at a large price, and now heads his famous and beautiful herd at New Hudson, Alleghany Co., N. Y. His dam, and so many of her descendants have proved extraordinary butter producers, that it gives great value to his blood. About the same time that he bought "Mercury," Mr. Simpson bought his full sister "Europa" (179), the dam of "Eurotas" (2454), an account of which famous cow was given in the *American Agriculturist* for August, page 305. To the record of her butter yield, given at that time, we may here add, that within ten months after calving, that is up to September 10th, she yielded the unprecedented amount of 752 pounds of butter, and is still producing, October 1st, over a pound of butter a day. Among "Mercury's" immediate get there are no cows which equal either his dam or her famous grand daughter, but there are no inferior cows among them, that we know of. Many of the second generation are exceedingly fine animals. Among the bulls the most famous is "Polonius" (2531), by "Sarpedon" (930), out of "Leda" (799), owned by Mr. John D. Wing, and so far as we know the only other "pure Alphea" bull except his sire. What is meant by a "pure Alphea" pedigree, is one which traces on all lines to "Jupiter" and "Alphea" whose blood was identical. So long, therefore, as we have "Europa" and other "pure Alphea" cows, the line of "Alphea's" descendants may be continued without alloy. Mr. Simpson claims for his herd the distinction of having more of the blood of "Alphea" than exists in any other. He is breeding for butter, making all other qualities subservient to this, and has several remarkable young cows of entirely different strains upon which to prove the effect of the "Alphea" cross.

Breeders of Jersies have too often followed the lead of the breeders on the Island of Jersey, who use, with hardly an exception, only yearling bulls, fattening and killing, or selling their bulls, even the best of them, soon after they are two years old. Thus they never know what the quality of a bull's get is, until after his death. Certainly not a wise system. Here we have not done much better, for bulls are generally killed about the time the oldest heifers of their get come to the pail. Old "Mercury's" long life of usefulness and his present vigorous old age, his gentle manners, and the health, good size, and good quality of his latest calves, is a sufficient argument against "turning off" a good bull when just in his prime. "Mercury" has years of usefulness yet to come.



JERSEY BULL MERCURY (432).—The Property of William Simpson, Esq., of West Farms, N. Y.

Seeding to Grass in the Fall.

The common practice of farmers in the North is to seed in the spring, in connection with spring wheat, barley, or oats. We recently visited a farmer who has practised seeding in the fall for many years. He followed spring seeding, and found that the grass seed made a small, poor growth under the oats, and the roots did not get strong enough in the growth after the oats were removed, to carry them well through the winter. He now seeds with rye, using about a hundred bushels of ashes to the acre where he lays down for meadow. His rotation is somewhat peculiar, and prepares the way for the remarkable success of his meadows, which last eight years, giving good crops of grass. In a ten-acre meadow under this treatment in its second year in grass, there were at least two tons of hay to the acre. He begins with the corn crop, applying to it all the manure upon the farm. Corn occupies the ground for one or two years, according to the condition of the land. If rich, mellow, and clean enough to suit his standard, the corn is followed by oats without manure. These are usually very heavy, both in straw and seed. Rye is the third crop in the rotation, taking all the ashes; they are procured from Oswego, and come by canal boat from that city without change to his wharf, three miles from the farm. At the cost of twenty cents a bushel at the wharf, he finds these the best fertilizer for his soil he has ever used. They last for eight years, giving good crops of grass without plowing, and the effects are seen for six years longer in the subsequent rotation. With the manuring practised upon his farm, we have no doubt fall has an advantage over spring seeding. W. C.

Pig-Pen, Hen-House, and Corn-Crib Combined.

BY WM. B. WIGGINS, HINTON, W. VA.

In order to make the most out of farm land in West Virginia, it is found necessary to economize space in erecting the buildings required for successful farming. The accompanying sketches may serve to give the reader the plan for erecting in a hill side, under one roof, the three important farm buildings named at the head of this article.

Figure 1 is a side view; fig. 2, a front view, and fig. 3, a floor plan of a Pig-pen; fig. 4, is a floor

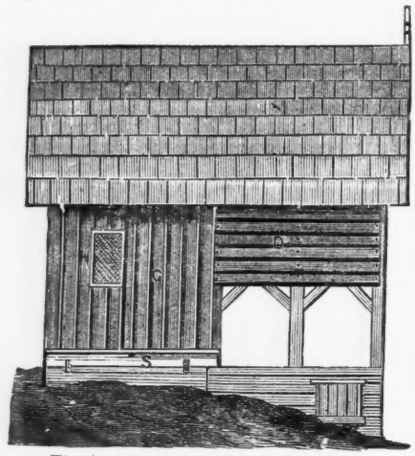


Fig. 1.—SIDE ELEVATION OF BUILDING.

plan of the Hen-house; and figure 5, shows a longitudinal section of the whole building.

The Pig-pen is constructed of stout framing, and where it comes in contact with the hill side, is protected by dry stone walls. The roof of the sleeping room, *B*, (fig. 3) forms the floor of the Hen-house. *G*. To prevent the dirt from one room being thrown into the other, the door of communication between them, *O*, is raised six inches from the floor and an inclined plane with a cleat is placed on either side to make it easy of ingress and egress. The feeding room, *A*, is protected from the weather by the corn-loft floor and the overhanging eaves. The Hen-house, fig. 1, is situated immediately over the sleeping room of the Pig-pen. It is ventilated by a wire-sash window at *H*, provided with perches (*R*, *R*, fig. 4) 18 inches from the floor at the lowest point,

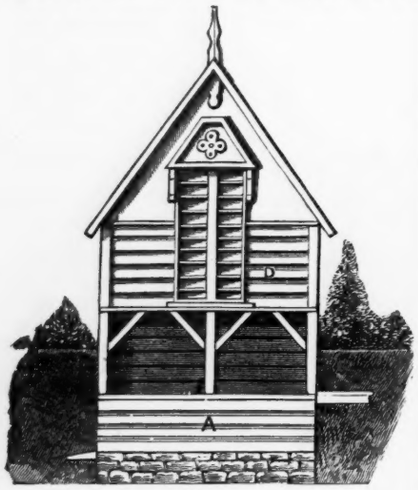


Fig. 2.—FRONT VIEW OF PIG-PEN, ETC.

and nest boxes on two sides, which are reached by doors on the outside, each door being a hinged plank the entire width of the building, as shown at *S*, figure 1. By this arrangement of the nests, the room need not be entered in quest of eggs. As will be seen by the section, fig. 5, the roof of the Hen-house forms an angle of about forty degrees; this being also the floor of the rear of the Corn-crib, it aids by its slope in readily filling the crib. The Corn-crib, *D*, is approached at the rear where a slatted door, corresponding with the large slatted front window, give sufficient ventilation for the corn. At *F*, is the platform from which to fill the crib. The building is 10 feet wide by fifteen feet in length, but may be increased in size as desired.

Sheep Husbandry vs. Dog Raising.

Since the illustration of a remarkable sheep convention in these pages, a number of years ago, at which a dog was publicly executed as a malefactor, sheep raising has made marked progress, in almost all parts of this country. There has been a steady increase in the number of sheep, and improvement in the quality of the wool and mutton. In the latter respect, the change has been quite remarkable in the Northern and older States. We can remember that mutton was looked upon with disfavor in the rural districts, and was seldom seen upon the farmer's table, from autumn until spring. In the smaller local markets, outside of the large cities, it was hardly possible to get sight of a mutton leg, after the new year came in, until the time of lambs and green peas. For half the year, at least, a man of well educated appetite, must needs go to the city, if he wanted a taste of boiled mutton and caper sauce. We are glad to say it is not so now. Though mutton is by no means as common as beef, or veal, in the spring months, the butcher almost always knows of an intelligent farmer, who has a few fat wethers, that have been grained during the winter, which he will dispose of for a consideration. The butcher has customers who know a good thing when they see it, and will not stand on the price of a South-down loin, or leg. Mutton is not as cheap as it ought to be, but still it can be had, every week in the year,

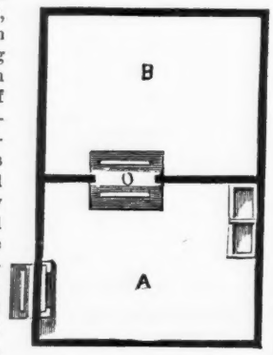


Fig. 3.—THE GROUND PLAN.

if one is able to pay the price. Intelligent farmers, who study the markets, find it profitable to raise the mutton breeds of sheep. A South-down or Cotswold ram, running with their flocks, secures larger and better lambs, which pay well whether sold the first season, or kept two or three years for wool, and mutton. They are not only profitable for their wool, and carcasses, but they improve the pastures where they feed, more than other stock, by the closer grazing, and the more equal distribution of manure. Farmers are taking much better views of sheep husbandry, and in many of the Northern States have secured effective legislation to protect their flocks against dogs, which have always been the great hindrance to sheep raising. Connecticut has an admirable law, which is gradually restraining the dog nuisance. Dog property is heavily taxed, and the thriftless citizen, who inclines to the chase, has to pay for his indulgence. For the male dog, he is taxed two dollars, annually, and for the female six ($6!), so that puppy raising is a rather expensive luxury. The money collected from the dog-tax, goes to pay for the damages inflicted upon the flocks by dogs. We are glad to say, that this law is not only upon the statute book, but is executed with commendable vigilance. Every sheep owner is a spy upon his neighbor, who cultivates dog flesh, and it is difficult to hide any cur of high or low degree from the tax-gatherer. Unregistered dogs are dispatched without mercy. Farmers, as a rule, recover the full value of the sheep killed, or maimed by dogs. The law works most kindly upon the sheep interest, and we shall soon have lamb, and mutton as cheap, and plenty, as veal, and beef. In all parts of the country, there is a steady growth of this interest, as capital becomes invested in flocks that are made secure.

CONNECTICUT.

Rocky Pastures—What to do With Them.

In many of the Eastern States there are rocky pastures in great abundance that have been grazed for a hundred years or more, and do not now yield grass enough to pay the taxes upon them. The stones and boulders are so thick that they cannot be plowed. It would cost from one to four hundred dollars an acre to clear them of rocks by the most economical methods, and it will not pay to do this until there is a great increase of population and a large advance in the price of land. They do not pay as pastures, for the cattle have so far to travel for their food, that they are about as hollow at night as in the morning. If trees start in them they are dwarfed by the perpetual cropping of the cattle. Though poor in grass, these pastures are not necessarily poor land. They may have all the material needed to grow forests, and were probably once covered with a heavy growth of timber. The best thing that can be done with these old pastures in the districts remote from good markets, is to turn them into woodlands. Many of them are already covered with patches of brush and briars, and if cattle and sheep were kept out of them, they would be in a few years covered with young trees. The process may be greatly hastened by sowing the seeds of timber trees, or by planting the young trees. This crop, once started, requires no labor except to keep out cattle by fencing. The value of the capital invested in such lands is small. The growth of the timber for twenty-five or thirty years would be a large interest on the investment. If oak or hickory were planted, there would be several harvests of hoop poles before the final clearing of the main growth of timber. No investment of capital can be more secure than this, and no property more certain to rise in value. Patches of woodland in the midst of cultivated farms are in little danger from fires, for help is always near to extinguish them. The demand upon our forests for fuel and for timber is so steady and persistent, that nothing can be more certain than higher prices for lumber in the next generation. All buildings and structures of wood are short lived, and must be renewed.

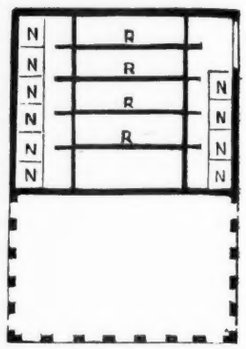


Fig. 4.—PLAN OF HEN ROOST.

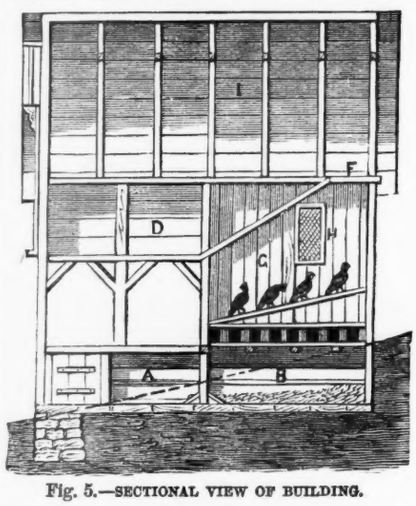


Fig. 5.—SECTIONAL VIEW OF BUILDING.

Railroads consume ties by the million annually. In most farming districts wood will be used for fuel and fencing for generations to come. It fills so many places in the economy of farm life, and in the arts, that we shall never be able to dispense with it. Forests have an appreciable influence upon climate, and in summer drouths and spring floods warn us

that we have already encroached too much upon our woodlands. It is not so much more land, as better land, that we want in all the older States. One acre well fertilized and tilled will yield more profit than ten acres half starved and neglected. We may safely reduce the breadth of our pastures and increase the depth and fertility of our meadows.

Among the Farmers.—No. 58.

BY ONE OF THEM.

Chemists tell us that the bodies of men and animals consist of water, to the extent of 80 to 87 per cent. What wonder, then, is it that water is so important a part of our diet. Next to pure air, pure water is the greatest necessity of our nature. Whenever a new country is settled, the first houses are always built near springs. Where men colonize—that is, settle a country in groups of families, the settlements are when possible clustered about

Springs of Water.

Springs are less likely to be contaminated by organic impurities than wells, because they are the out-cropping of usually underground streams, and are independent of local sources. Hence spring water is almost always agreeable to the taste, pure and limpid, and uniform throughout the year. There are not a few wells in this region (Bergen County, N. J.), which were originally flowing springs—now stoned up and appearing as if they had been dug. With these there is always an outflow through the soil, or by some artificial channel.

Wells and Health.

The ordinary source of water in any tolerably well settled region, is the well. Scattered springs are indeed used, but there are not enough of them. So the settlers dig wells, happy if they strike permanent water within 25 feet from the surface. These wells are located with reference solely to the convenience of getting to them from the house, unless, indeed, the striking of a vein of water proves to be an uncertain thing, and the wells are located by the witch-hazel rod, in which cases they may be placed in all sorts of inconvenient positions. The idea of placing them where the source of the water will be uncontaminated is never—hardly ever—considered at all. It is no unusual thing to see the privy vault and the well in near proximity. A well placed half way between the house and the barn, is quite common, and if the barn-yard is fully fifty feet away it may be regarded as a piece of good luck rather than an evidence of design.

The pig-pen generally has a yard which soon becomes a pit full of water in wet seasons—often overflowing and soaking away into porous soil. The house slops are thrown, more often than not, where they will run off into the vegetable garden, or upon the ground close to the privy, where a pool is formed, the overflow of which gets into the vault, perhaps, or evaporates into the air.

Pure and Impure Air.

Defilement to the well water, and certain contamination to the air, come or may come from all these sources. We get on very well for years. The pure air of heaven is a blessed thing. It blows from the north-west cool and bracing; it comes from the east laden with the beneficent rain, and the balmy breezes of the south come to us freighted with the odors of the ocean and the shore, salty and health-giving. It is near home that the air is polluted. I have noticed the odor of a pig-sty two miles off with a piece of woods between, and I have no doubt, had my perceptions not been blunted with the many odors of civilization, or had I come fresh out of the mountains, the odor might have been oppressive twice as far away. The ozone in the air, and the sunshine, and the frost destroy the germs of disease with which we load the air around our dwellings, but the water retains them.

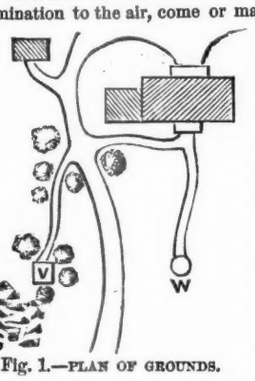


Fig. 1.—PLAN OF GROUNDS.

A Notable Case of Well-Poisoning.

One of the most ancient dwellings in this vicinity, used as headquarters by American officers in the Revolution, and occupied ever since by people of wealth, many of whom moved into the country for the health of their families, has a privy vault located some 60 to 80 feet from the dwelling on lower ground. The well stands near the house, and quite as far from the vault, on ground higher still. The roots of an Ailanthus tree some how penetrated to the water, and were supposed to cause a change in it. So the tree was cut down, the roots cleaned out of the well, and it was supposed to be purified. This season, that dreaded disease, diphtheria, has been in the neighborhood, attacking only those whose systems were adapted to give it a lodgment through the subtle influences of foul air or foul water, decaying vegetation in the cellars, obstructed sink drains, putrefaction in privy vaults, or some such cause. The family occupying the old mansion was visited; nine out of perhaps fourteen persons in two households were attacked, and, for a wonder, only one died—a little girl. Then, of course, everything was examined, cleansed and purified. The privy was found with some four or five feet of water in the vault, as it had been from time immemorial, except in very dry seasons. This was a bubbling, seething mass when disturbed—odorous and vile. Half a barrel of strong solution of copperas was poured into it, and a great change was at once perceived, and not here alone. The well water, which had been used both for drinking and washing, suddenly became very "hard," and upon examination was found to contain large quantities of copperas, showing absoulutely that there was then, and doubtless for years had been, a direct communication from the privy vault to the well. In the accompanying sketches, figure 1 shows the position of the house, well, and vault, and figure 2, the probable relations of things beneath the surface of the ground. *W* is the well, *V* the vault, and *S* indicates the position of the low and partly swampy ground. The dotted line, *A*, *B*, in figure 2, indicates the supposed level of the water in the soil during a wet time, when it is quite probable the flow of water might be from *B* towards *A*. But, after a dry time, when the water level might be as low as the surface of the water as represented in the well, if a heavy fall of rain should take place, the water would rise in the swamp first, and would then flow towards the well, carrying defilement and death, either directly from the vault, or from the soil in the vicinity of it, saturated by its overflow. This terrible experience will be unheeded by the great proportion of the population. Other privies will contaminate the wells. "Malaria," as it is sagely called, will cause bilious fevers, and chills and typhoid fever, and diphtheria perhaps, and the air will take the blame instead of the water. The thing to do is to arrest and destroy the germs of disease of every form both in the air and water.

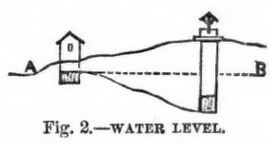


Fig. 2.—WATER LEVEL.

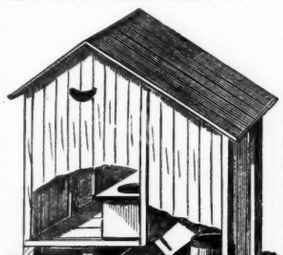


Fig. 3.—THE DRAWER SYSTEM.

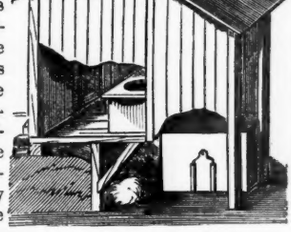


Fig. 4.—THE PLATFORM SYSTEM.

The Plague Spot

of most farms is the privy vault. The older it is, the more dangerous. The only perfect safety seems to be in the earth-closet, or something of the kind. The proper course is to move off the privy, empty the vault and take it up, dig out the discolored earth on the old site, and fill up the hole with earth and stones. Then to arrange the privy with a strong drawer made water-tight, the ends being strapped with hoop iron. This should be placed beneath the seat, and about three feet below it. In use, very dry sifted earth is spread over the bottom of the drawer to the depth of about three inches, and the accumulations covered daily with additions of dry earth, or in winter with earth and coal ashes. This may be done in any convenient way, best perhaps, by lifting a shutter at the rear, and scattering in a few shovelfuls of earth and levelling it off. When the drawer is full it is removed by drawing a stone-boat alongside, placing the drawer upon it by means of a crowbar or other lever, when it may be taken away and dumped, either in a compost heap, or directly upon the land. I have tried several methods—having the drawer upon runners—using no drawer, but a platform accessible from the rear, the earth being thrown on daily, and the accumulations removed by the shovel and carted away. For an ordinary family the drawer system is best; for a family of, say, ten members, the platform plan is perhaps most convenient.

Fig. 5.—MEASURING GAUGE.

Figure 3 represents the drawer system. Figure 4, a privy with a platform. A piece of 4 by 4 scantling, laid down on the platform, keeps the accumulations in place, and there should be room under the extension of the roof for barrels or bins of dry earth, or swamp muck, which, if fine and dry, is just as good as the fine dry earth.

Hand-Gauge for Measuring Horses.

It is often desirable to know exactly the hight of a horse. I have found it so, as I wanted from time to time to know how my colts were growing. The instrument shown in figure 5 is made for this purpose. I found it in use at a sale stable, and constructed one like it. The upright is a square rod of 1¼-inch yellow pine, 6 feet 2 inches long, and from the 6-foot markdownward is graduated by "hands" — a hand is 4 inches, consequently 6 feet, or 72 inches, is 18 hands. The hight of horses is from 15 to 18 hands. That of ponies from 8 to 14 hands, so that we need to have our measuring-rod graduated only between 32 and 72 inches. The "hands" are divided into inches, which, of course, are quarter hands, and the inches again into quarters, which is as nearly accurate as it is necessary to be. The cross-piece, or index, is also of yellow pine, 6 inches wide at the broad end, and of the shape shown in figure 6. A band of sheet brass, with a piece cut out as shown in the engraving, is bent at two right angles, so that it will slide easily

Fig. 6.—THE INDEX.

on the upright; it is screwed firmly to the index, so that the horizontal line which is coincident with the lower edge of the index near the end, shall be accurately at right angles with the upright. In measuring a horse, the index must rest lightly on the withers at their highest point, the measuring-rod standing as nearly perpendicular as possible.

Feeding Trough for Fowls.

There have been a great many feeding troughs devised for chickens and other poultry, but I have

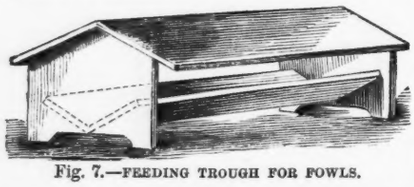
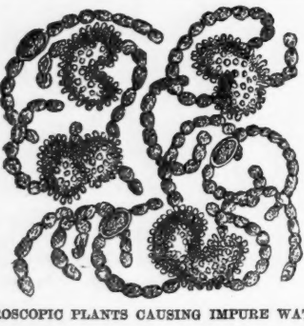


Fig. 7.—FEEDING TROUGH FOR FOWLS.

never seen one so convenient and practically good as that shown in figure 7, devised and used by my friend, Geo. G. Curtis, of Gravesend. It is made thus: The ends are cut 12 inches square, the upper corners taken off to give a pitch to the roof boards. Two 6-inch boards form the trough, and rest on cleats on the end boards, to which they are nailed. The roof is of 10-inch boards, one of which is nailed fast, the other hinged to it, so that it may be lifted like a lid when the trough is filled or cleaned. It has the following advantages: The feed cannot get wet; the fowls are not able to stand or sit on the edge of the trough, and as the space between the edge and the roof is only three or four inches, they can not get into the trough, and even young chickens are not likely to; it is easy to fill, easy to clean out, very substantial, and strong if not made of too great length. Six feet long is about right.

Impurities of Drinking Water.

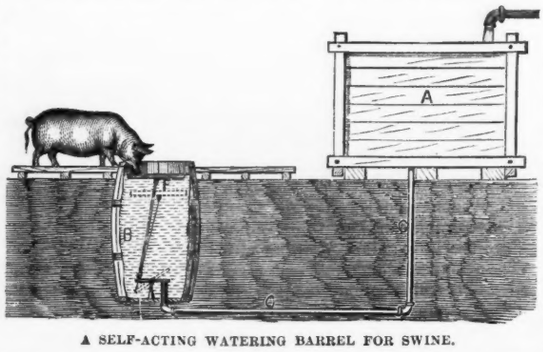
Professor G. W. Farlow, M. D., of Harvard University, has made an extensive examination into the impurities of drinking water, the results of which are valuable to our readers. Professor Farlow states that, under ordinary circumstances no direct trouble is likely to arise from the growth of the larger weeds in our water supplies, provided the plants are living and flourishing. The disagreeable tastes and odors of many of the waters examined were produced by small plants of a very low order of organization—in fact, microscopic. There are two groups of these microscopic plants—those which are grass-green or yellowish-green, and the bluish-green or purplish sort. From a sanitary point of view, the grass-green plants have no injurious effect upon the water in which they grow, but on the other hand, the purity of the water is indicated by their growing in it. The "moss-covered bucket" brings the pure water from the well. These green water plants (algæ) usually look, to the naked eye, like fine threads, some of which branch, and others do not; they may be either floating on or near the surface, or attached to the bottom or sides of the pond, spring, or well. The second group, the bluish-green or purplish algæ, is the one that most interests us, as the members of this group cause some of the most disagreeable odors and tastes found in drinking water. The kidney-shaped, spiny bodies in the accompanying engraving represent clusters of these plants found in impure drinking water, and form a scum upon its surface. Each body is a mass of jelly, in which the bluish-green cells of the plants are embedded. These colonies are very small, and the engraving represents them magnified 300 times. Very small plants have very long names sometimes: this is the *Cœlosphærium Kuetzingianum*. This plant is often found with another, which is filamentous, or like the links of a sausage, and is represented with it in the engraving. These and other plants flourish in warm, and especially the hot weather of August and September, but may be found to a certain extent at almost any season. "So long as they are living, and not exceedingly abundant, they produce no perceptible bad effect on the water; but when large quantities of them decay, they give rise to the 'pig-pen odor,' as it is called, which has in recent years caused considerable trouble and still more alarm." Dr. Farlow suggests no absolute remedy, but states that all water places should be cleared of weeds, and other substances upon which these plants may lodge. "Large and deep bodies of water are less likely to be affected than small and shallow ones, and gravelly bottoms are better than muddy. In one respect the fears of the public may be set at rest. The theory that certain diseases, as fever, are produced by germs of some low forms of plant life, whether true or not, has no bearing on the present case." The microscopic plants that make the water unfit for family use, do not cause the various diseases that have been assigned to them.



MICROSCOPIC PLANTS CAUSING IMPURE WATER.

A Barrel Fountain for Pigs.

"L. B.," Omaha, Nebraska, while on a visit at Lincoln of that State, gathered, among other valuable things for the farm, some ideas on stock matters of such interest to himself that he ventures to offer them to the public through the *American Agriculturist*. Mr. B. writes: "Mr. C. N. Baird, Receiver of the U. S. Land Office, called my attention to a device originated by himself for watering hogs, of which I give you a rough sketch." The main tank, *A*, is supplied by a windmill and pump. A barrel, *B*, is sunk nearly to its top in the ground, at any desired distance from the tank, with which it is connected by a small iron pipe *C*, *C*, passing from the bottom of the tank to the bottom of the barrel. A float, *F* is attached by a chain, cord, or wire to a lever valve at the bottom of the barrel. When the barrel is full of water, the float is raised to the surface, closing the valve and stopping the flow of water. As the water is drunk, the float drops and opens the valve as shown by dotted line in the accompanying engraving, when a supply of water comes in and again the float is raised. By packing the barrel and pipe well with mulch when setting, the effects of cold are almost entirely avoided. The cost of this handy watering barrel is not over five dollars. With this apparatus an unfailing supply of clear, pure water is furnished. He has never had a case of cholera or other disease among his hogs, and volunteers the opinion that filthy food and quarters, and especially lack of pure water in abundance, is the main cause of hog diseases. Mr. Baird objects to running streams for water supply for stock.



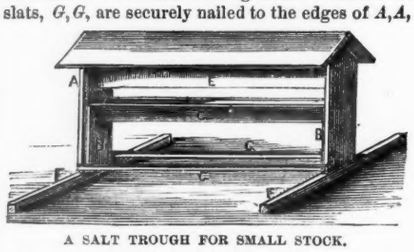
A SELF-ACTING WATERING BARREL FOR SWINE.

A Muzzle for Biting Horses.

There has been a number of inquiries of late as to an easy and effectual method of curing the habit of biting in horses. This dangerous habit is taught the horses by thoughtless owners or drivers, by playing with them when colts, or teasing them when full grown. A sharp cut with a whip across the horse's nose whenever he bites may serve to break him of the habit; but when the case is worse and incurable, a muzzle of some sort had best be put upon the horse. A muzzle for this purpose may be made of strips of light hoop iron or of leather. A band is made to encircle the muzzle, to which strips of the leather or iron are fastened, and the whole buckled to the headstall, as shown in the accompanying engraving. At the bottom of the muzzle a round piece of leather should be fastened by rivets to keep the strips in place.

A MUZZLE FOR BITING HORSES.

A Salt Trough for Sheep and Goats.—Mr. J. G. McArthur, Meridian, Miss., sends a sketch and description of a Salt Trough for small farm stock, and wishes to give the readers of the *American Agriculturist* the benefit of his invention. Mr. M. writes: "I have resorted to various expedients to place a constant supply of salt within easy reach of my stock without having it wasted and defiled by their feet and droppings....I think that I can now consistently and confidently exclaim Eureka!" The following are the dimensions of the Salting Trough as used by Mr. M. The sides, *A*,*A*, are 12 inches wide and 28 in. long, with the upper end pointed for the roof; *B*,*B*, 9 inches wide and 14 inches long with fork for trough; *C*, the trough made by placing two 6-inch boards together and resting in *B*,*B*. A 6-inch board, *E*, is fastened to the center of *A*,*A*, and 6 inches above the center of the trough to prevent young animals from getting into the trough. Two 3-inch slats, four feet long, *F*,*F*, are nailed horizontally to *A*,*A*, to prevent the frame from turning over. Two 3-inch slats, *G*,*G*, are securely nailed to the edges of *A*,*A*,



A SALT TROUGH FOR SMALL STOCK.

and rest upon *F*,*F*, as braces to strengthen the frame. The roof is made of two 8-inch boards, extending 4 inches over the end as gables.

Fodder Corn: Amount per Acre.—According to Goffart in his work on "Ensilage of Maize," the minimum yield has been 15,000 kilogrammes per hectare; it has risen in 1875 to a maximum of 150,000 kilogrammes upon a field of thirty-six acres. The average yield has been, during six years, about 90,000 kilogrammes the hectare." The minimum

in France is therefore six and two-thirds tons, and the maximum sixty-six tons per acre. A yield of twenty tons per acre is as much as could be reasonably expected, unless the soil has the richness, mellowness, and depth of a fine garden soil.

How to Dress a Turkey.

There is much practical wisdom among the poultry men, that does not get into the papers or books. A turkey raiser who prides himself on sending to market the handsomest lot of turkeys in his town, for the Christmas market, tells us how he dresses his birds. The turkeys are fed as usual the night before butchering, and in the morning are driven in upon the barn floor, as soon as they come from the roost, and are made secure. Their crops are empty, and they can be caught as they are wanted. Make a slip noose of strong cord for each turkey, in an adjoining stable or shed, put the turkey's legs into the noose, and with a small pointed knife stick the bird as near the head as possible. As soon as the bird is dead, strip off the feathers, pinfeathers and all. Cut the neck off as near the head as possible, remove the wings and draw the entrails, before taking the bird down. The turkey is hung up alive, and taken down ready for market. Lay the bird on his breast or side, upon a clean board to cool. Turkeys should be carefully handled in dressing, to avoid breaking the skin, for it rubs off very easily when they are warm. Remove all the pinfeathers and pack the birds when sent to market, in clean straw, so that there will be no marks of blood upon them. Handsome, clean dressing will add a cent a pound, and often more, to the market price of all kinds of poultry.

Pitting Corn Fodder.

The good result which many persons obtained last year in pitting corn fodder, leads this year to the making of many pits, or *silos*, for this purpose, all over the country. So that if there is the least question as to the utility of the process, it will be soon set at rest by a thousand experimenters.

We were much interested in witnessing the filling of the pits built by the Messrs. Buckley Brothers, of Port Jervis, N. Y., whom we visited about the middle of September. It has been their habit for many years to put in a large area of sowed corn, which was cut and put up for curing in stooks, and afterwards housed or stacked near the barns. This year they have a larger area than usual, a large part of which they put down in pits for winter feeding. This matter of pitting or *ensilaging* corn fodder has been carefully investigated by them, and they have made, this year, two pits under the cow-barn floor. These pits (fig. 1) are 22 feet long, 9 feet wide, and 15½ feet deep, side by side, with a two-foot wall between them. They are walled all around and cemented water-tight. They would answer well as cisterns. These two are just built, but there is an old one, 10 feet wide, 50 feet long, and 7 feet deep, which is under the feeding floor. The location of these pits is shown in the accompanying plan, fig. 2. The cow-barn is 120 feet long, by 30 feet wide. The feeding floor is 10 feet wide, and the standing space for the cows is the same width on each side. There is room for 36 cows in this stable, up to the barn floor. The floor, the stalls and all from side to side, was taken up for the filling of the pits, but it will be relaid.

At the time we were there the work of filling was going on in full blast. A pair of powerful mules were at work in the horse power. The feed-cutter stood directly behind them, and cut the stalks in half-inch pieces, at the rate of two tons an hour. It required three men to tend the cutter, taking the corn from the wagon, feeding it to the cutter, and seeing that it was properly shunted off into the pits, where one man spread it as evenly as possible, and tramped it down. At noon and evening half-a-dozen men got into the tanks, and tramped the fodder down as firmly as they could. One man and one team were required to haul the fodder from the field. As soon as a wagon load was brought into the barn, the team was ungeared and hitched to the empty wagon. In the field the teamster assisted in the loading. There were three men in the field cutting up the corn and loading the wagon. Thus the labor required was as follows: Two teams and one driver, four men in the barn and three in the field—eight men in all. With this force they were putting in about twenty tons a day.

The stalks were rather dry; the juice did not squirt out of them when they went through the cutter, and the chaffings were not even moist to the touch. When packed in the pits, a strong fermentation sets in very soon. The corn that had been packed the day before was steaming hot, no doubt having a temperature of 110° to 120° Fahrenheit. It had a vinous odor which was very sweet and pleasant. Mr. Charles Buckley gave us the figures of the cost of these two pits, which is as follows:

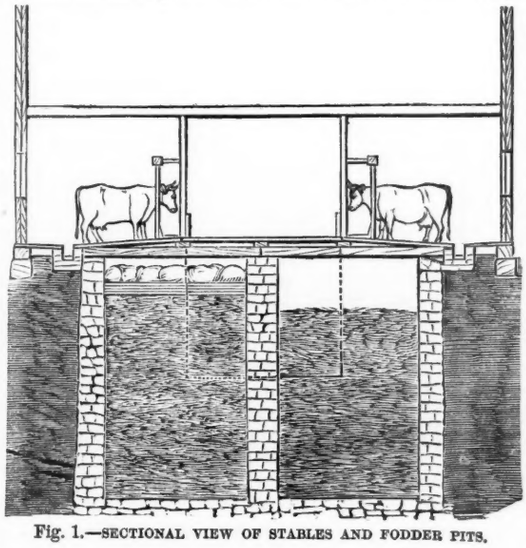


Fig. 1.—SECTIONAL VIEW OF STABLES AND FODDER PITS.

Digging, 112 days work at $1.....	$112.00
Masons' bill.....	94.44
Men to assist the masons, 12 days work...	12.00
Bill for Lime and Cement.....	78.10
Total outlay.....	$296.54

This does not include anything for stone, for the stones taken out of the pit were sufficient for the walls, and more too. Neither is any charge made for superintendence, and no doubt it would be fair to add fully ten per cent for the supervision, and actual labor, which at one time or another the farmer himself gave, or say $325 in all. There were 50 barrels of cement used, and about half as much lime, part of which, 8 bbls., was very good, and the rest, 50 bushels, cheap and of a low grade. The proportion of sand to cement and lime in the mortar with which the walls were laid up, was about two-thirds, but in coating over the surface to make the whole water-tight, nearly pure cement was used. Thus the pits were filled, each one receiving its quota of ten tons, more or less, being well trodden down, allowed to settle over night and again trodden down in the morning before work, all hands being engaged in the tramping. When full as possible, settled and tramped, and beginning to heat in the top layers, it is covered with six inches of long rye straw—any other straw will answer—and this, with a layer of planks, cut to fit crossways, but not so long as to bind. Stones are piled or rather laid upon the planks so that fully one hundred pounds to the square foot rests upon the fodder. Thus it is left for winter use. Filled full, one of these pits will hold sixty tons. That is, containing as they do over 3,000 cubic feet, or 2,400 bushels—at fifty pounds to the bushel, which the compressed moist, and, almost solid fodder will weigh—this is equal to 120,000 lbs., or 60 tons.

As to the keeping, there can be no question, if the work is properly done. A brisk fermentation comes on, as we have seen—as it dose in a tub of apple pulp for making cider. If the air has very slight access it will go on to ultimate decay; but if it is kept out, the little air at first present is driven off by the carbonic acid gas which is formed, and the mass ceases to ferment, and remains as if it were in an air tight case. There is, however, a slight access of air upon the surface and its action upon the juices in the straw and upper layer of fodder is just enough to maintain an atmosphere of carbonic acid gas over the mass—and in the straw which is like a rubber blanket, confined as it is beneath the planks. The stable will be replaced over the pits, and when the time comes for feeding there will be no going out in storms and "slush" and ice to haul in the fodder from out-of-door pits, but the floor will be taken up over a sufficient space, and enough feed removed from one end for two days, when it will be packed down again and covered closely. We think rubber blankets, tarpaulins, canvas, or any coarse cloth painted with boiled oil, would be excellent to pack close down upon the fodder to exclude the air. One thing strikes us as very important, and that is, to *know for a certainty* that there is no settling of carbonic acid gas in the pit, after a considerable opening is made. A man going into a place filled with this gas—as often in deep wells—is over-powered before he knows it, falls and *drowns* as surely as if he were under water, and is even less likely to be resuscitated. The way to *know* whether a man can enter with safety, is to lower a lantern, which, if it burns freely, it shows that there is not a dangerous proportion of gas in the air of the pit.

Selection of Breeding Stock.—The art of breeding may be summed up in the one word, *selection*, or it may be expressed in the common rule of good breeding—"Always select the best." To be able to tell the best is the most difficult point in the breeding of farm stock. The successful breeder must have a clear idea of the qualities sought, and the quickest and best method by which such ends may be reached. He must necessarily be keen of sight to observe the good and bad points, and the causes by which they have been brought about. His judgment must be of the best to suggest remedies for defects, and new methods for bringing out valuable characteristics. "He will prove himself the most successful breeder who can select with the most correct judgment." Edward Hammond—whose breeding in sheep has been so successful, once said, when asked what proportion of the rams bred by himself he would willingly use in his own flock, answered, "Not one in three hundred." This is but an instance of the care, skill, judgment, and, we may add, present sacrifice exercised by the true breeder. We have said that in profitable breeding the selection must be for a distinct and well defined purpose. The first principle in stock breeding was the selection of animals adapted to the circumstances of the given farm, its size, quality of food, etc. The ancients knew that the breeds of animals that had lived for a long period of time on hard fare and a poor soil, would do better on moderate land than

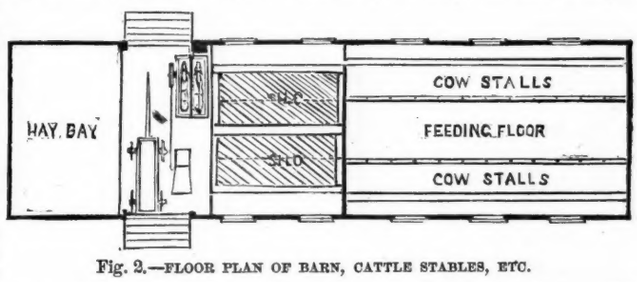


Fig. 2.—FLOOR PLAN OF BARN, CATTLE STABLES, ETC.

those that had the highest kinds of keeping. Animals are much like plants, as they do not thrive well if transplanted from a rich to a poor soil.

How Grain-in-Bulk is Handled.

The enormous and ungainly structures which, to the number of six or more, disfigure our harbor and remind one of Chicago or some other Western grain mart, as one after another they have gone up

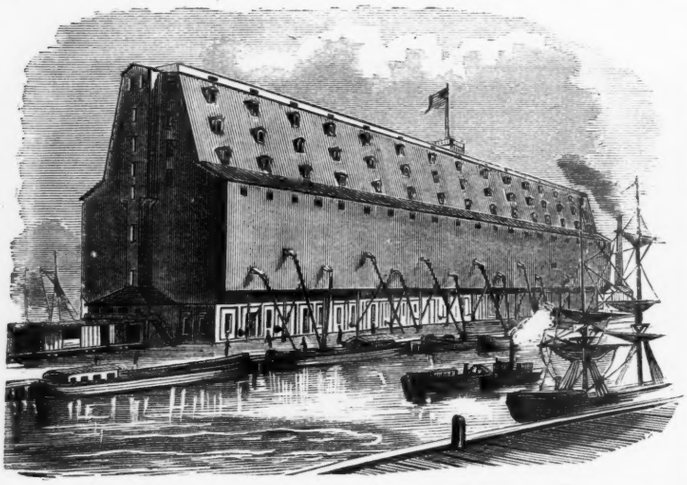


Fig. 1.—A SIDE VIEW OF THE ERIE GRAIN "ELEVATOR."

near the termini of the great railroads, have excited much curiosity among our own citizens, and of course are objects of interest and wonder to strangers. Figure 1, is a view of one of the most conspicuous of these "Elevators," for so they are called, though they might be called Store Houses with greater propriety. This one was built for the Erie Railway Co., and is calculated to hold a million and a half bushels of grain. This amount is, however, considerably in excess of its actual working capacity. This structure stands upon piles driven to the depth of 60 feet into the mud in what was called Harsimus Cove, between the terminus of the Erie Railway (Pavonia Ferry) on the north, and that of the Pennsylvania Railroad at Jersey City proper, on the south. The piles were sawed off below low-water mark, a flooring of heavy timber placed upon them and bolted fast, and the granite piers upon which the building stands, placed upon this flooring. So long as this wooden foundation remains beneath the water, it will remain sound; The main part of the building, all that from the piers to the first roof, is of wood, and is wholly occupied by grain bins. In the construction of these bins 2 by 6-inch yellow pine plank were used;

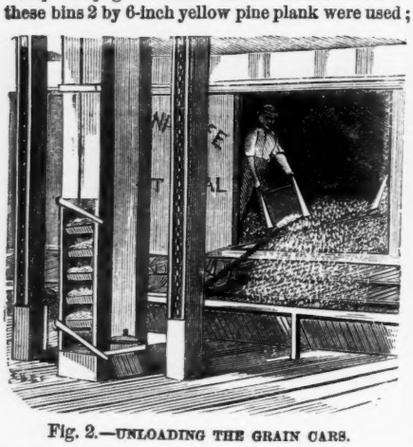


Fig. 2.—UNLOADING THE GRAIN CARS.

2 by 12-inch plank being used for the outside course all around. These planks are all laid flat and pinned together. Of course they break joints throughout, and the whole structure is as solid and substantial as it is easy to imagine. The upper portion of the building is occupied by arrangements for weighing the grain and distributing it into the different bins. This will be hereafter described.

Receiving the Grain.

The grain cars, in which the grain comes from the West. enter the building on double tracks. The cars are placed over grated openings in the floor, between the track and a little to one side. The cars contain about 600 bushels each, and are filled about half full. When in position one door of the car is opened and some of the grain flows out. Then two men appear, each having a broad shovel nearly square, perhaps 3 feet wide by 2½ feet high — having one edge and the sides and top furnished with guards. A rope is attached to each shovel by short chains, and the men spring into the car with their shovels. Motion is given to the rope at once, and each end, with the shovel attached, guided by the man in charge of it, is drawn alternately towards the door of the car, moving perhaps 20 bushels out of the car at each motion. The men have lively work for a short time, and in about eight minutes the car is empty. This operation is shown in figure 2. Meanwhile the grain has passed into a great hopper beneath the track, and has been steadily rising to the very top of the building, by means of a common contrivance of metal buckets upon a band, shown in part in fig. 2, known in grist-mills as an Elevator, but in these grain "elevators" called a "leg." This name no doubt comes from the floating "elevators," in which the grain is raised by band elevators contained in wooden trunks upon the outside, which look a little like great bracing legs. There are twenty of these "legs" in the building, and it is through them that all the grain is elevated to the top, there to be weighed, screened if necessary, and distributed into the various bins throughout the building.

The system by which the grain is distributed to the different bins is very simple. It requires constant vigilance on the part of the weighers, who have the whole of this department in charge, and who have an enormous blackboard, marked off in squares, and numbered to represent each bin, whereon they keep a record of exactly what kind of grain each one contains, and of the quantity.

Cleaning the Grain.

When grain—wheat for example—is to be cleaned, it is of course at the owner's expense, and may be done more or less thoroughly or "hard." It is carried up to the screen by a "leg," and discharged into it. On entering the grain is spread out into a thin fan-like stream which falls upon a perforated metal table, the grain in its fall being subjected to a strong stream of air which is *sucked* through it by a "blower." This draft of air is sufficient to carry up, not only the dust and dirt, straw, etc., but light grains and oats, and if applied with sufficient power will even carry up the wheat itself. The best of the grain falls through upon the perforated table or screen, which is subjected to a rapid shaking motion, like the screens of a common fan-mill. The wheat passes through the screen, the kernels of corn, sticks, nails, jack-knives, nuts, bolts, silver quarters, and such things, remain, and are shaken off at the tail of the screen.

Weighing the Grain.

The grain is weighed when screened and when shipped. The scales are as high up as they can coveniently be placed. The tops of the "legs," and the cleaners are higher, then comes the weighing floor, below this the system of spouts for conducting the grain to the different bins. The scales are capable of weighing a car load at a time, in fact more, but they are not usually more heavily taxed. A weighing is called a "draft," and the "drafts," for convenience of figuring, are of 500 bushels, which, of wheat, is 30,000 pounds, 28,000 of corn or rye, and 16,000 of oats. The grain is delivered by a "leg" into the great hopper-shaped "scale-pan" so to speak, which is so nicely adjusted as to tip the beam as accurately as any grocer's scale. A pane of glass in the side of the hopper-shaped grain holder shows whether it is full or empty, and there is an opening for sampling each "draft," as the grain is received, when that is desirable.

Shipping the Grain.

When grain is to be shipped, the steamer or sailing vessel may come along side the "elevator," and the grain may be discharged directly into her as fast as weighed. This, however, is not now the usual way. The grain is first run into canal boats, for the steamers will not leave their own berths, and at the same time that they are receiving grain, other freight may be taken on board at the docks. The loading of a canal boat is seen in figure 3, and four shutes are directed into the hatchways, and a boat is filled in about 35 minutes when three "legs" are used. A canal boat will hold about 8,000 bushels, 480,000 pounds, which is 240 tons or something over 13 car loads. This work goes on so rapidly, that when done as fast as possible, the canal boats can be filled quicker than they can be put in place and taken away from the side of the elevator.

Motive Power.

This whole machinery is moved by two lines of shafting in the upper part, which are run by two very plain, but excellent smooth-running and economical vertical beam engines, of 500 horse power each, and exact duplicates of one another. Each one is capable of doing the whole work, and they are run alternately a week or so at a time. The shafting is connected with the engines by long belts of rubber, about 40 inches wide, and each engine runs independently its own line of shafting.

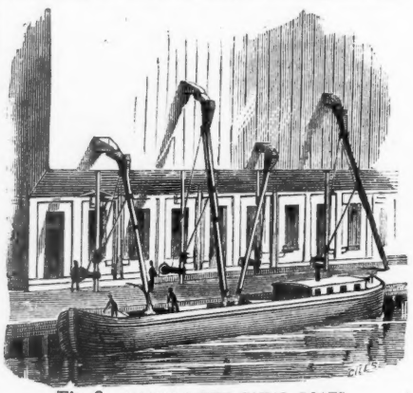


Fig. 3.—LOADING THE CANAL BOATS.

General Management.

The receiving scales, at the time of our visit, were those along the south side, and the shipping scales on the opposite side. These two sets of scales being exact duplicates, may change work.

The "Elevator" is or may be run day and night, and in order to do night work, gas is carried all over the building where work is done. This night work must cause a greater danger from fire, than would otherwise occur. There is always some danger, where there is heavy machinery, more or less liable to friction where it is inaccessible, and when the materials are so very inflammable. To offset this, a pumping engine is kept constantly at work throwing water into a tank in the highest part of the "Elevator." From this there is a constant flow, small indeed, but large enough to indicate to the engineer that everything is all right. If this outflow ceases, he immediately puts on more power and pumps more water according to the demand. The water is distributed along the principal floors, and hose are kept attached ready for instant use.

Some Items in Farm Economy.

The arrangement of the buildings and the division of the farm into fields depends so much upon the character of the farm, the kind of farming, individual taste, etc., that it is out of the question to have a fixed plan that is the best one for all farms of any given size. There are certain general

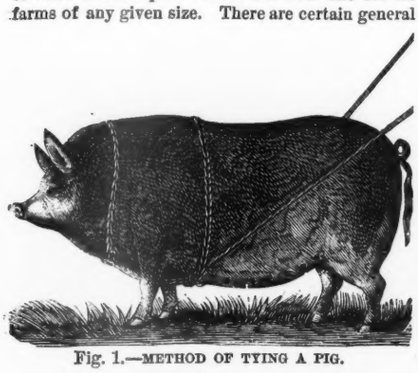


Fig. 1.—METHOD OF TYING A PIG.

principles which should serve as a foundation for the arrangement, but the details must necessarily vary greatly. For example, if possible the barns should be upon a rise of ground where a cellar can be built opening to the lower ground at the rear. The fields should be so arranged that there shall be as little fencing as possible, and so located that all the fields can be easily reached from the lane. A long field has considerable advantage over one of the same area that is square—in the longer "bouts," and therefore less time spent in turning, plowing, harrowing, sowing, harvesting, etc. A pasture close to the stables is always handy, and other things being equal, the orchard should not be put at the rear of the farm, where the wood lot had best be located. There is much labor to be saved in having every thing so placed—and this applies to the various details that seem trivial at first sight—that there will be no extra steps or turns in doing the every-day work of the farm. For example, many days' work can be saved by having the pump in a handy corner of the barn-yard, where the stock from a number of yards may come to the troughs. If the matters of the farm are not already economically arranged, it would be well to make such charges of fences, buildings, etc., as to finally secure the desired end. By degrees the thoughtful farmer will improve his farm until it approximates to a model and therefore an economical farm.

The New York Agricultural Experiment Station.

The Legislature of the State of New York, at its last session, chartered "an Institution to be known as the New York Agricultural Experiment Station," for the purpose of "promoting" Agriculture in its

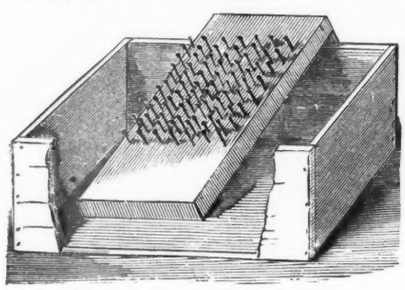


Fig. 2.—A HANDY CORN SHELLER.

various branches. Its management will be entrusted to a Board, and this Board is to be selected by one member being appointed by prominent Agricultural and Horticultural Societies and Clubs, to the number of seven, specified by name—two others to be appointed by the Board itself, and when the dairy interests of the State shall be represented by one Society, then, it may appoint one member. The Governor of the State and the Director of the Station are *ex-officio* members of the Board. The law provides for filling vacancies, for the officers, for meetings, etc., defines the powers of the Director and of the Board, and appropriates $20,000 for two years—as we understand it, $40,000 in all, for carrying out the objects—at least, for making a beginning.

There are several provisions in this act which seem to indicate that this Institution, intended as it obviously is for the good of the whole State, ought not to be so centralized as it would be were the money to be expended in securing land, fitting up experiment fields, stables, dairy rooms, etc., a chemical laboratory and rooms for scientific men to do their work. At the end of two years the results would be very meagre, and we can hardly doubt that a renewal of the appropriation, or, indeed, any appropriation, would be secured with difficulty.

The fact is, there are now within the State several "experiment stations," so to speak, already under way. There is one at Cornell University; and there are private farms where accurate experiments have been conducted, or where preparation is being carefully made for this purpose. We hesitate not to say that there are competent men, gentlemen of wealth, education, and responsibility, in every section of the State who would gladly undertake to conduct series of experiments under the inspection and direction of the Director of the Experiment Station. Furthermore—every large cheese factory, every large butter dairy, and every considerable nursery are experiment stations, ready furnished and manned to do the bidding of the Experiment Station, if approached in the right way, and given credit for their work. So that a little money spent for the actual outlay in case expensive experiments

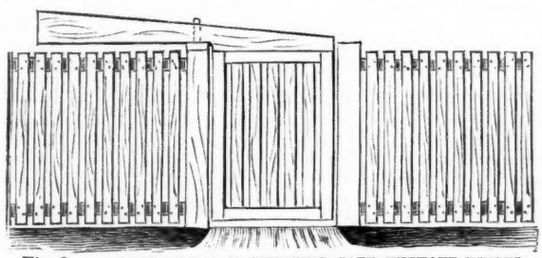


Fig. 3.—A NORTH CAROLINA SWINGING GATE WITHOUT HINGES.

are made, would be the only cost that would be incurred in this sort of experimental work.

Hints and Helps for Farmers.

TYING A PIG.—"J. K.," Coffeyville, Kansas, writes: "In the Nov. *American Agriculturist*, 1879, in the illustration of tying a pig, the rope is right, only it should come underneath the pig instead of along the back as shown in fig. 1. The rope from the neck passing through between the fore legs and then around the body. Take one rope out on each side of the pig, and stand behind the animal with the ropes in your hands. This way of handling a pig is much more valuable than it might at first appear. Nor is it so cruel as tying by the feet or the snout. Try it on your dog with a small rope, and you will soon learn its method, security and convenience. I often use this method of tying a pig."

A HANDY CORN SHELLER may be made from a piece of plank two feet long, two inches thick, and ten inches wide. Drive eight-penny nails pretty thickly into the central portion, just so that they will not come through, and for a distance of ten or twelve inches along the surface of the plank. A small strip should be tacked across the upper end and on the under side to hold on to the top of a box when in use. The corn is shelled by rubbing the ears upon the heads of the nails, the board resting in a slanting position in the box, as shown in fig. 2. We are indebted to a subscriber for this device, whose initials, even, we fail to find upon the letter which accompanied the sketch.

A GATE WITHOUT HINGES.—"One of the readers of the *American Agriculturist*," Charleston, S. C., sends the drawing of "a gate which is in use in Western North Carolina." It consists of a long pole which rests near its middle upon the end of one of the posts, with the gate portion framed into the part of the pole which extends between the posts when the gate is closed. The construction of this pivot-gate is better understood from the accompanying engraving, fig. 3, than any verbal description that can be given. It is quickly and cheaply made, and opens and closes with ease.

CANDLING EGGS.—Many of our western merchants employ a box for testing their eggs, like the

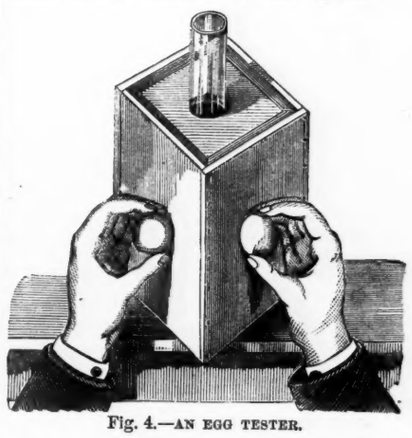


Fig. 4.—AN EGG TESTER.

one shown in the accompanying engraving, fig. 4. It is constructed of an empty plug tobacco caddy, with two holes for the eggs. A hole is made in the top, through which projects the chimney of a common kerosene lamp, and the box is also provided with a suitable door on the back to insert the lamp. The egg-tester is set on the edge of a box or table of convenient hight. By using both hands, an egg in each, a gross can be tested about as fast as one can count. The work should be done in a dark cellar, or darkened room, a place being provided for each grade of eggs, which may be known as clear, cracked, specked, and worthless. J. L. T.

SPLITTING WOOD.—Seeing a boy trying his best to split a section of wood, which would not yield to his axe, I showed him an old method, by which he readily split it. He struck "fair and square" many times in the same place, but did not twist his helve at the moment of striking the wood. The secret of splitting is simply to "flop" the axe, thus making use of the poll of the axe as a lever the moment it enters. While this method seems to be pretty generally known to the woodsmen of the Central and New England States, the choppers of the West and South, and all old countrymen that have come under my observation, know nothing of it whatever; frequently striking a dozen times, where one well directed blow with a "twist of the wrist" would readily part the stick. I find this motion very effective in splitting our western maple, cedar, balsam, and other tough woods. J. L. T.

Fig. 5.—SPLITTING WOOD.

Worn-Out Soil.—The quickest and cheapest way to bring up a soil that is naturally poor or partially exhausted from over cropping, is to get some crop that is a "close feeder,"—one that will take up the scattered food rapidly—to grow upon it.

Editorial Correspondence.

Are Large Farmers Desirable?

In conversing with farmers, and others also, as we journey through the country, we hear the frequent expression of a fear that the business of farming will gradually fall into the hands of a few men—those who can employ large capital and machinery, and work at a greater profit and undersell others—and that the competition will "freeze out" the smaller farmers. They point to the example of the Dalrymple, and Grandon, and Watson farms, etc. [See page 422, last month.] There is no cause for fear in this direction. There will doubtless be a number of such capitalist farmers, just as there are a few large merchants. But the fact that there is an A. T. Stewart in New York has not lessened, but rather increased the number of smaller traders. Machinery, system, and wholesale operations in farming are economical under a man of extraordinary executive ability. But the number of persons who can and will carry on such extended operations is very limited, in farming as in trade. The travelling jobbers who supply movable machinery—harvesters, threshers, etc.—place the smaller farmers almost upon a par with the larger ones in respect to implements. The man with a single team can break and harrow his own land, acre for acre, just about as cheaply as it can be done by the man who runs a hundred plows by hired help, and usually more economically. The few great farmers, here and there, such as we described in previous Notes, have been a blessing in that they have been, in one respect, pioneers in showing the possibilities of the soil in certain localities, and called attention to the profitableness of soil culture as compared with other pursuits.

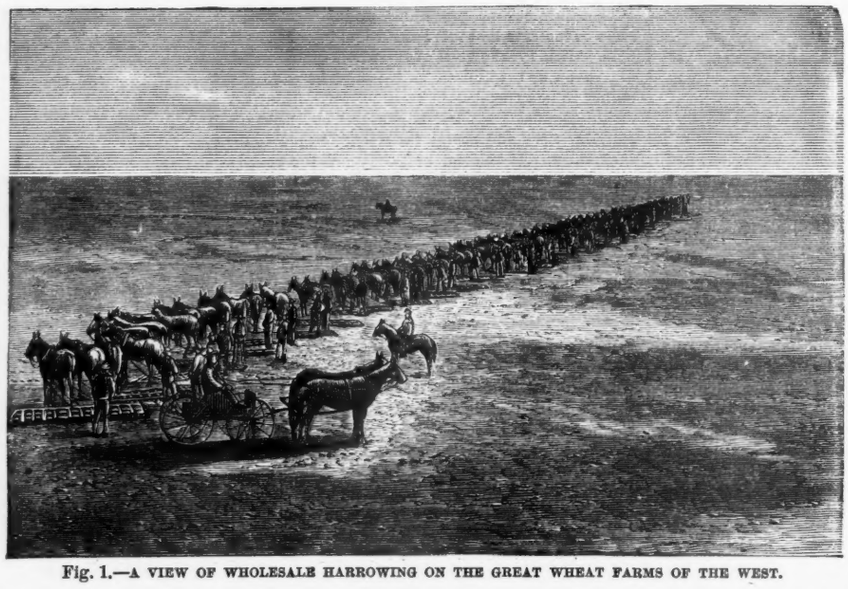


Fig. 1.—A VIEW OF WHOLESALE HARROWING ON THE GREAT WHEAT FARMS OF THE WEST.

Working in Gangs.

In our Notes sent for October (p. 422) we referred to the grand sight presented by 16 harvesters working together. On the steamer we met F. Jay Haynes, of Fargo, Dak., returning from a trip to the Upper Missouri, where he had been taking photographs of various interesting points. In looking over his portfolio, we found sketches of gangs of Harrowers and Seeders at the Dalrymple farms, taken by "instant photograph," which he kindly presented to the *American Agriculturist*, and we forward them herewith. They will give the readers an actual view of these operations as seen on some great farms in Minnesota and Dakota. [Engravings have been made from the photographs forwarded by Mr. Judd, and are presented on this page.—ED.]

Good Land Still Available in Iowa.

During the last twenty years or more we have so often been into and across Iowa, and watched its rapid development, that we had almost come to consider this superb agricultural State as "settled up and finished." But not quite so. Last year we saw sundry good plots still open to purchasers along through the two southern tiers of counties. Yesterday, starting from Running Water, a new village in Dakota, on the Missouri River, opposite the mouth of the Niobrara River, we journeyed by the new branch of the Milwaukee and St. Paul Railroad northeasterly over broad prairies now rapidly filling up by settlers. Today we are passing through the second tier of counties from the northern line of Iowa, and at every Station find quite a number of farmers from the older portions of the West, who have just made new purchases of land, or are prospecting with that object. The crops in most places indicate good land; the prospectors speak well of what they have seen. We are a little surprised to find that there are still several hundred thousand acres of desirable land to be had from the Railroad and others at $3 to $6 per acre, with large reductions in prices to those who buy of the railroad and immediately put it under cultivation—amounting to $2 to $2.50 per acre. Considerable plots are held by capitalists and others in nearly all the north-northwestern counties. The larger portions of the railroad lands are in Clay, Palo Alto, Kossuth, and Emmett Counties. We should judge it preferable to examine the available lands in Northwestern Iowa, before going far into Dakota, though there are here no lands for "homesteading." There is plenty of such land in Dakota, but one needs the skill to select the really good, and to look well to the water supply. If there is a finer farming country in the world than one can find along the Chicago and N. W. Railroad from Marshalltown eastward, we have yet to see it; and the region northward, as we have just seen it at this writing, scarcely falls behind. But these older farms in Eastern and Northeastern Iowa, and indeed in many other parts of the State, can to-day hardly be bought, acre for acre, at what ordinary farm land will sell for on the average in the Middle and Eastern States of the Union.

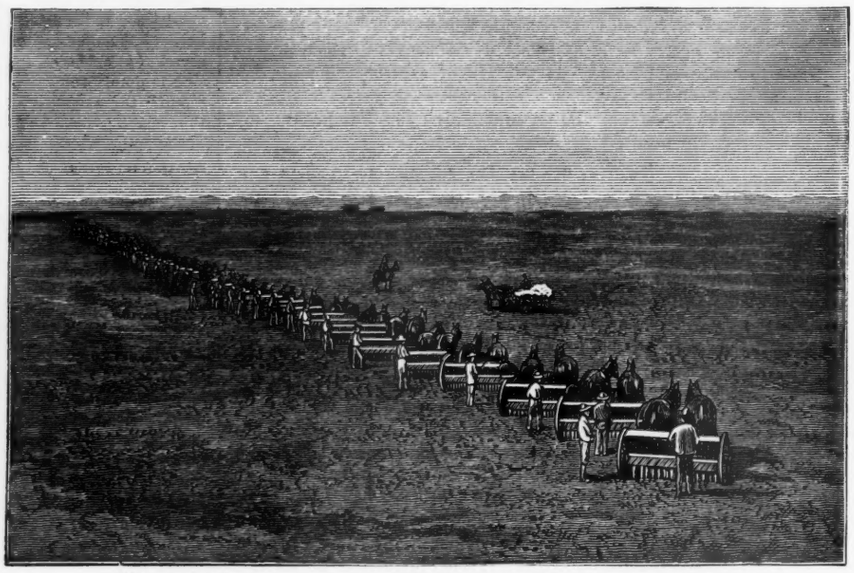


Fig. 2.—SOWING THE WHEAT ON THE PRAIRIE FARMS OF THE NORTH-WEST.

Prairie du Chien
(Dog Prairie).

Some 24 years ago, we visited this town after journeying across Wisconsin, in a tour among the farmers, studying their wants, modes of culture, etc. It was then merely a terminal railway station whence we made our first trip on the Upper Mississippi to St. Paul.—Stopping here now for a night's rest, we have visited the town, or village, (or "city" we believe they call it), which is situated so far back from the river and R. R. station that those merely passing through do not see it. We found it a flourishing place, with some 4,000 inhabitants, and many fine business and other buildings, located on the bench land below the bluffs. Several large and successful Artesian wells are found here—the water rising from a depth of 800 to 1,000 feet, with sufficient force to supply fountains, to run in pipes to the tops of the houses, and save the need of fire engines, and supply power for manufacturing purposes even. We were most interested in a Linseed-oil Mill, just started here by Mr. Famechon, on a small scale, grinding say 25 bushels of flax-seed per day, but to be speedily enlarged. Farmers are receiving about $1 per bushel for the seed. One bushel yields two gallons of oil, and this is now all sold at the mill for home use—the raw oil for 55 cents a gallon, and a few cents higher when boiled, which just about covers the cost of the seed and waste. But it is a profitable business nevertheless. The "cake" is loaded upon cars, and sent directly through to New York, or other Eastern cities, netting about $20 per ton. At the East it is fed to farm animals, producing a rich manure, and thus the prairie fertility is carried to and enriches the worn-out Eastern soils.

There are numerous beds of coal throughout Northwestern Iowa, so abundant and easily reached that it is furnished at the railway stations for $2.50 to $5.00 a ton, according to its quality and the location. It is a soft variety, and contains a good deal of sulphur usually; but it answers a very good purpose as fuel in stoves adapted to burning it—a most beneficent provision for this prairie region. O. J.

(Other Editorial Correspondence given elsewhere.)

A Few Showy Summer Perennials.

Among the more showy plants for late summer and autumn blooming, we find the choicer varieties of Perennial Phloxes, which in their endless variety form a beautiful and attractive sight. Solidagos, or Golden Rods, especially *S. Shortii*, *S. Riddellii* and *S. Ohioensis*, all natives of the Western States; *S. rigida* and *S. stricta*, from the Eastern; and *S. angustifolia* from the Southern States, are among the most showy, and where the space is large enough to grow these tall plants, nothing will show to better advantage at this season. Of Clematises, in addition to the large and late flowering varieties, we may mention *C. crispa*, a beautiful purple, fragrant-flowered sort; *C. Pitcheri*, with dark brownish-purple flowers, *C. coccinea*, with bright scarlet flowers, all natives of the Southern States; and *C. Davidiana*, *C. tubulosa*, and *C. graveolens*, very desirable species of recent introduction; the two first growing upright, with purple flowers, and the latter a rampant climber, with greenish-yellow flowers, followed by silvery plumy fruit. Besides these there are the brilliant-colored Tritomas, or Red Hot Pokers, *T. Uvaria* and *T. Macoweni*, several species of *Liatris*, or Blazing Star, notably *L. pycnostachya*, *L. elegans*, *L. scariosa* and *L. punctata*, all fine purple-flowered plants; and last, but not least, the choicer species and varieties of Delphiniums or Larkspurs, but little grown, as yet, in America. The above sorts, with many more equally desirable late-blooming plants, will serve to make a garden attractive during the early autumn, when there is generally a lack of flowers in the garden.

Frequently we are asked to recommend Hardy Perennials for summer flowering, which will give a constant bloom during the summer months. It is a somewhat difficult matter to do this, especially where there are so many that are showy and desirable. We have been highly pleased this summer with two species which have been in full bloom for the past three months, and bid fair to last until frost withers their tops. The first of these is *Malva Alcea*, or Hollyhock Mallow. Although a very old plant, and well known in collections of hardy perennials in Europe, it is comparatively rare in our American collections of such plants. It is a native of France and Central Europe; grows from two to three feet high, and is profusely covered with large deep rose-colored flowers, two to three inches in diameter. Our plant commenced to flower early in July, and has been one mass of bloom ever since, with an abundance of buds yet to open. From the axil of the lower leaves new stems appear, which in turn produce flowers, so that it makes a constant and profuse bloom. In selecting a spot for planting, choose a sunny place in rich soil, where the plant can have a space at least two feet square. It may be readily propagated from seeds sown early in April in window boxes, or in the open ground in May. The other plant shown on this page is the Mealy, or Silvery Sage (*Salvia farinosa*). It is a native of Texas, and of quite recent introduction into cultivation. Although the genus *Salvia* contains many fine and strong species, natives of different portions of the United States, but few of them are known to cultivation; and most of these are introduced through seeds or plants from English nurseries. This species of Sage grows in large tufts three to four feet broad, and two feet or more high. The individual flower stems are four to six inches long, and are covered with beautiful violet-blue flowers, one-half to three-fourths of an inch long. The flower stem, as well as the leaves and calyx, are covered with a soft, silvery-whitish down, which renders the whole plant extremely showy, even when not in bloom. It has proved perfectly hardy during the past winter in the vicinity of New York City without any protection whatever. Until it becomes more plenty, however, it would be well to keep a plant in a cool greenhouse, or even in a cold frame. A rich, sandy soil, where water does not stand during winter, ought to be selected. Our plant has been in bloom since June, and still (September 15th) shows no lack of buds and flowers, which are constantly appearing. A bed, or border of this Silvery Sage, backed with the Hollyhock Mallow, would make an exceedingly pretty show in the garden during the summer and fall months.

THE HOLLYHOCK MALLOW (*Malva Alcea*).

THE MEALY OR SILVERY SAGE (*Salvia farinosa*).

Watering in Dry Weather.

BY PETER HENDERSON.

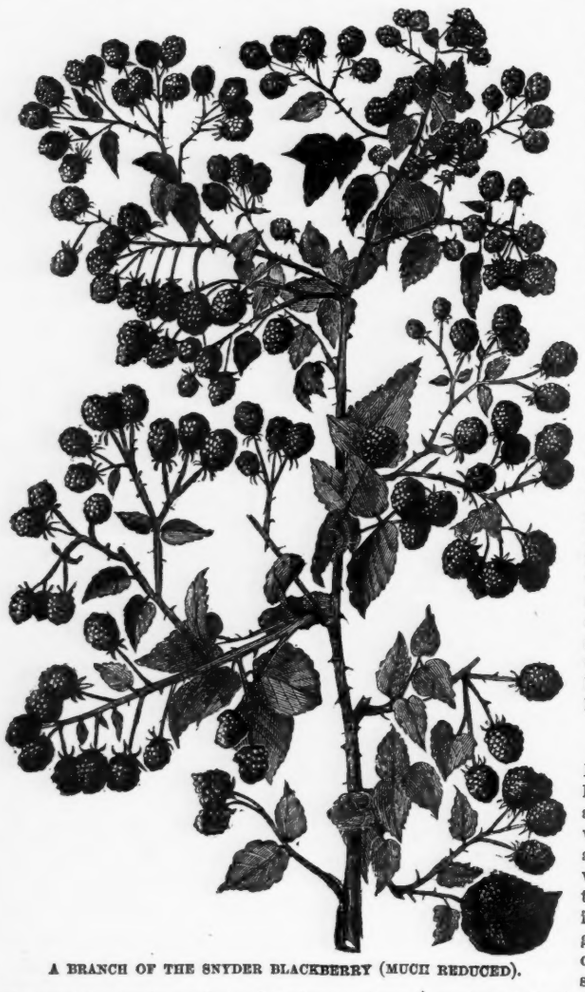
A correspondent from Cincinnati says: "The collection of Roses I got from you in May—fifty in number—are getting 'smaller by degrees and beautifully less.' We have hardly had rain for a month, and the thermometer up among the nineties. I sprinkle them every night, but it seems to do no good. What can I do? Let me know through the columns of the *American Agriculturist*, as I suppose my case is a general one, and will interest others."

Stop the "sprinkling," and give each plant a horse-bucketful once a week in dry weather until they begin to grow, being careful to make a tight basin around the plant, so that the water does not run off. When the water has soaked in, the edges of the basin should be raked level for the double purpose of preventing the soil cracking where the water has run, and making a loose surface. If watering is thoroughly done in this way once or twice, it is likely all that will be necessary, for as soon as a plant of any kind begins to make roots—which is indicated by its making a fresh top growth—there is little or no necessity of it being further watered in the open ground if the soil is of average quality. In our own practice we never think of watering plants set in the open ground, unless in cases where late planting is necessary, and then they are individually watered by the bucketful as above, which is rarely done but once. Much labor that can ill be afforded is entirely thrown away in this "sprinkling" of plants. I have seen

market gardeners dragging for weary hours in midsummer along their long rows of celery, sprinkling with rose watering pots, repeating the process day after day—and yet the whole crop failed. If watering is ever to be done at all, it must be done copiously—it is far better to put on all the force a whole day once a week, and do the watering in a thorough manner, than to give a "sprinkling" with the same force an hour or two every day.

Our Blackberries: The Snyder.

Of over one hundred and fifty known species of the genus *Rubus*, only two, *R. villosus*, and *R. Canadensis*, furnish us the really good varieties of our cultivated Blackberries. *Rubus fruticosus*, a widely known species in Europe, is not the source of any very valuable cultivated varieties; in fact no successful efforts have been made to greatly improve the wild European species. In many parts of our own country the people are satisfied with the fruit furnished by the "brambles" of the fence rows, fields, and wood lots—and it is of such a good quality, and often not lacking in quantity—that the garden culture of the blackberry is thereby retarded. The varieties that now take the lead have been chance seedlings, found growing wild and removed to the garden where they have received careful attention. Thus the Lawton was observed on a roadside in the town of New Rochelle, Westchester Co., N. Y. This variety, called New Rochelle, and better known as Lawton, has done more to introduce the blackberry to cultivation than all the other sorts put together. The liability of the canes to winter-kill, and the unpleasantness of the fruit unless perfectly ripe, has placed the Lawton at a great disadvantage with the Kittatinny, "whose Indian name has become a household word from association with this most delicious fruit. Mr. Wolverton, in finding it, has done more for the world than if he had opened a gold mine." The fruit is large, and when ripe, rich and melting. The plant is a vigorous grower, and with good soil and culture is very productive. The Snyder blackberry originated on or near the farm of Mr. Snyder, near La Porte, Ind., about the year 1851. Like the two above mentioned, it is a chance seedling of the *Rubus villosus*, or High Blackberry of the fields and hillsides. The accompanying engraving was made from a photograph of a portion of a fruiting cane nearly ten feet in hight, brought to our office by E. P. Roe, Cornwall-on-the-Hudson, N. Y. We visited Mr. Roe's small fruit farm and nurseries about three weeks before the Snyder ripened its berries, and were both surprised and pleased at his field of this blackberry. The Snyder is wonderfully productive, as a small portion of one of the fruiting canes, much reduced in size in the engraving, would indicate. The plants are very vigorous and stocky, and ripen their fruit quite early. The great desideratum among blackberries has been one that is perfectly hardy, and this want has been met in great part by the Snyder, which endures without any serious injury the extremes of temperature of the Northern States. The great fault of the Snyder is the size of the berry, which is somewhat below the Kittatinny and Lawton. On this point Mr. Roe says, in his "Success with Small Fruits": "On moist land, with judicious pruning, it could be made to approach them very nearly, however, while its earliness, hardiness, fine flavor, and ability to grow and yield abundantly almost anywhere, will tend to an increased popularity. For home use, size is not so important as flavor and certainty of a crop. It is also more nearly ripe when first black, than any other kind that I have seen, its thorns are straight and therefore less vicious. I find that it is growing steadily in popular favor; and when the Kittatinny is winter-killed this hardy new variety leaves little cause for repining."



A BRANCH OF THE SNYDER BLACKBERRY (MUCH REDUCED).

The Fall of the Leaf.—During the growing season the leaf is the seat of great chemical activity. In the green tissue, which is spread out to the light and air, the crude materials, which come from the soil and the atmosphere, are transformed into new compounds, and then go to build up the various parts of the growing plant. As the season draws to a close, the work of the leaf also comes to an end; and in decay it often assumes gorgeous colors and finally falls to the ground. At first thought it might seem that in the annual production of leaves there is a great waste. Leaves should be on the outmost branches to be in the sunshine; they must therefore appear on the new growth, that is, come in the spring and go in autumn. Leaves in one season get choked up with the residue material of assimilation and become inactive should they remain. And last of all, the most expensive part of the leaf—the *protoplasm*, the substance in which vital changes take place—is to a very large extent withdrawn by the tree, and is not lost, it passing out of the leaf and into the stem below, before the leaf separates from the stem. In the fall of the leaf in autumn there is a gain in many ways instead of a loss.

ST. DABEOC'S HEATH (*Menziesia polifolia*).

A Rare Shrub—St. Dabeoc's Heath.

Among the smaller shrubs which have been under cultivation in our grounds the past few years, is the *Menziesia* (*Dabœcia*) *polifolia*, or St. Dabeoc's Heath. It is a native of France, and is also found sparingly in Ireland. The flowers are of a beautiful pink, bell-shaped (nearly half an inch long), and drooping, as shown in the accompanying engraving. This pretty little Heath commences flowering in July and remains in bloom until after the middle of September. There are a number of varieties of this species found in Europe, the white one being the only one we have seen. They make very pretty shrubs for herbaceous borders, or for planting among other dwarf-growing plants. So eager are many American planters for rapid, vigorous-growing shrubs and plants, that they entirely overlook these little gems, which require some extra care in growing. There are numerous species of Ericas, or Heaths, found abundantly in various portions of Europe, which do very finely here in our borders, but are rarely if ever seen in gardens. The number of rare and little-known Ericaceous plants found in our own country is by no means small. The common Heather, or Ling, of Europe is perfectly hardy in the United States, and can be grown easily if a little care is taken at the start. *Epigœa repens*, or Mayflower, is easily grown if attention is only paid to getting good plants with good roots. They should be taken up in October and potted in good leaf mould and sand, and placed in a cold frame or cool greenhouse, where they can form new roots,

and by spring are fit to plant out. We should be glad to see more attention paid to these small shrubs by our planters and lovers of choice flowers, for we know that no class of plants are more desirable where the space that can be devoted to them is small. A sandy soil, well mixed with leaf mould, is suitable for growing this class of plants, though it is found that the Ling, Trailing Arbutus, and the early-flowering *Erica carnea* do well in sandy soil without leaf mould. We have often heard it said that our climate is not suited to growing such plants, but from an experience of some years with them, we see not the slightest difficulty if proper care is given at the start. A bed of these *Ericaceous* plants in our grounds is a constant source of pleasure during the whole season, as there is scarcely a week during the summer that some varieties of *Erica*, *Andromeda*, or *Menziesia* are not in bloom.

The Importance of a Farm Vineyard.

The great increase in grape culture is encouraging. California has thousands of acres in vineyard, and nearly all the European varieties of grapes are produced in the greatest perfection and abundance. Extensive vineyards have been planted in the Ohio and Missouri Valleys and in favored localities in the Northeastern States. New varieties have been originated and widely distributed, that are hardy enough to mature in every State in the Union. Our large cities and many of our villages along the line of railroads are fairly supplied with good grapes in their season at reasonable prices. It has been demonstrated that every farmer and villager in the land can have an abundant supply of this delicious fruit for four months in the year, for the trouble of planting and caring for a few vines. Our horticulturists have done the pioneer work of hybridizing, and originating new varieties that stand the test of soil and climate in all the States. And yet California is the only State where the grape may be said to be fairly popularized. The great mass of our farming population do not enjoy this luxury, and multitudes a little remote from market towns are only acquainted with our wild varieties. The grape ought to be as widely disseminated as the apple, and there is no good reason why it should not be. The large vineyards can supply our city population, but to supply the agricultural districts, grapes must be grown at home. This can be done, at so small cost, that no man who owns a home with a half acre or land has any apology for depriving his family of grapes. An eighth of an acre in vines will supply a family and leave a surplus to sell. Any well-drained land that will produce sixty bushels of corn to the acre may be expected to produce good grapes. Well-prepared borders, with a good supply of bones, are desirable, but by no means essential. A dressing of wood ashes is an excellent fertilizer, but any manure good for corn will be good for the vines. The varieties which do well under the greatest variety of circumstances, and bear neglect best, are such as the Concord, the Hartford Prolific, and the Ives Seedling. There are grapes of much better quality than these, but they are good enough to suit the popular taste, and are hardy. They can be relied upon to bear fruit every season in generous quantity The Ives has a thick skin and is particularly desirable to pack in boxes for winter use. They have been for years before the public, are thoroughly tested, and can be furnished very cheaply by any nurseryman. A cheap trellis of chestnut posts and wire will be all the support they need. A four-months' supply of grapes will promote health in the family, save doctors' bills, and prove an important part of the food supply. W. C.

[Feeling the importance of the grape vine upon the farm, we gave, in 1878, a series of articles headed "One Grape Vine," in which directions for planting, etc., were presented at considerable length. These articles, judging from the many letters they called forth, met the wants of a large class The matter of pruning the vine was thoroughly explained with illustrations in the April number of the present year, to which the interested reader should turn for hints on this important part of the work of the farm vineyard.—ED.]

The Corn Smut (*Ustilago maydis.*)

The Smut in Indian corn, which has long been an annoyance to farmers, is a fungus, and therefore a minute parasitic plant, which, instead of growing from the soil and elaborating its own food, vegetates in the growing tissue of the corn plant, and robs it of its nourishment. It is difficult for any one to tell,

Fig. 1.—A BADLY SMUTTED EAR.

owing to its minuteness, just when and where the smut plant begins its growth upon the corn—it may be that the spores, or seeds, of the parasite are clinging to the grains of corn and are planted with them. As the moving air is known to be constantly carrying invisible fungus germs from one place to another, it is more probable that they first reach the corn plant in this way, and enter it by germinating upon the surface and sending the young threads into the substance of the stem and leaves. After growing for a time, the parasite prepares for the production of a new crop of spores, by means of which the smut plant is perpetuated. This it does by first accumulating a mass of threads in certain favorite portions of the plant, usually the young grains of growing corn. At first the affected grains are noticed of unusual size, followed shortly by a darkening of the interior, together with a constant increase in size, until at last the grain has assumed large dimensions, is soft throughout, and made up almost entirely of a sticky mass of black spores. Figure 1 shows an ear, the grains of which have been thus transformed by the infesting smut plant. On account of the ears of corn being covered with husks, the early stages of the smut are not seen, and the first that is observed is the black, worthless mass that is the final stage of the parasite. In fig. 3 an ear is shown in which but a few scattered grains are smutted, and the difference in their size and shape is strikingly contrasted with the normal ones

Fig. 2.—PORTION OF SMUTTED TASSEL.

around them. The production of spores is not entirely confined to the grains, but they frequently make their appearance in the male flowers situated at the top of the stalk, and composing what is commonly known as the tassel. A portion of a tassel thus affected is shown in fig. 2. A few of the small, dark-brown spores, which make up the mass of smut, are shown in fig. 4, and are magnified about five hundred times. The number of spores that a single smutted ear will produce is almost beyond computation. Corn Smut is injurious to animals if eaten by them to any considerable extent; it acts both as a poison and mechanical irritant. Moist seasons are peculiarly favorable to the development of the Smut plant—therefore it is much more common one season than another. If the Smut plant enters the growing corn through the seed with which it has been planted, a treatment like that used for seed wheat to prevent Rust may be of value in preventing its occurrence. This is to wet the corn before sowing with a solution of Sulphate of Copper (blue vitriol), and dry it with lime. The best way to rid a field of this pest is to pass through it as soon as the smutted ears appear and gather and burn them. This both keeps the smut from the live stock and prevents it from shedding broadcast the millions of spores. Other kinds of grains are infested by fungi and have their shape and properties changed even more than in case of the corn. Thus the Ergot or "Spurred Rye" is the grain of the rye greatly distorted by the growth of the parasitic fungus, producing a much more poisonous substance than the common corn smut.

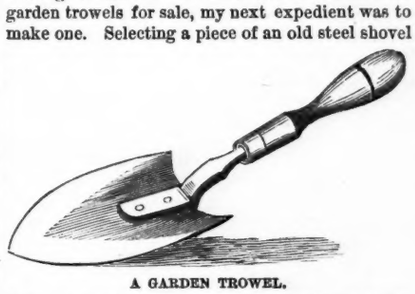
Fig. 3.—PARTLY SMUTTED EAR.

Fig. 4.

Handy Home-Made Garden Tools.

BY J. L. TOWNSEND.

GARDEN TROWEL.—In but few country places can a gardener's outfit be purchased, and after waiting in vain for our hardware stores to offer garden trowels for sale, my next expedient was to make one. Selecting a piece of an old steel shovel



A GARDEN TROWEL.

blade from the "catch all" of our village blacksmith shop, I soon produced a blade which was supplied with a shank by the blacksmith, while I turned a hard-wood handle for it on my foot lathe.

TRANSPLANTING DIBBLE.—He who keeps a box of odds and ends, will find that many a useful tool can be fashioned from the broken parts of others. Needing a garden dibble, I resorted to my box of iron old and found a shank from a broken hoe. I cut off the small piece of the hoe blade, straightened the shank and pointed it, and inserting a neatly turned wooden handle with a rather large head, I secured for my work a very handy tool.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Home-Made Picture Frames.

(BY CARRIE CLOVERNOOK.)

"We girls" at home have, as the dealers say, made a specialty of frames. We took some plain molding that had done duty on an old-fashioned door-casing, had it measured and sawed into shape, and with the help of a single sheet of dark pebbled paper, and one-half sheet of gilt, made a frame that, I think, no one has suspected is not really rosewood and gilt. We have paid homage to the white, short-lived beauty of frames of parched corn, and the long list of odd and rustic devices that we have seen in print, or been shown us by friends, but none of us had thought it possible that any beauty could be hidden in coarse brown wrapping paper. First, a frame of suitable size and width for the picture selected must be cut from stiff pasteboard, figure 1, taking care to have it perfectly true. An old box-cover will answer the purpose very well. If you have never seen brown paper well varnished, it may be best to select several bits of different color and texture, and apply two good coats of varnish, then you can easily decide which should be used for the frame; that of medium thickness and stiffness is best. Cut out squares, of three-fourths of an inch in size, figure 2, fold with the fingers, first from corner to corner, then double again upon the remaining corner, making a triangle of four thicknesses of paper, figure 3. Sew these small triangles on the outer edge of the frame, and also on the inner, letting the points reach out beyond the edge, and also overlap so that the middle of the base of the first will be touched by the lower point of its next neighbor. Continue to sew rows on the frame from each edge until the bases of the triangles meet in the middle of the frame, remembering to have the outer points of the second row fall over the opening between the points of the first row. When the frame is filled, if its sides are straight, a narrow strip of paper, with edges folded in—laid over the bases—will finish it neatly as shown in figure 4. I ought to have mentioned at first that loops of strong tape should be sewed on the back for convenience in hanging, which can best be done before the front of the frame is made. If the frame is oval in shape, a strip would not lie smoothly; and squares, like the first used, but folded to retain their first shape, one-fourth the size when finished, are laid on over the bases, overlapping each other. Some may think them prettier for any shape of frame, than the strip. When well varnished it is completed. Thin soft corn husks can be used in the place of paper, in their natural color or dyed.

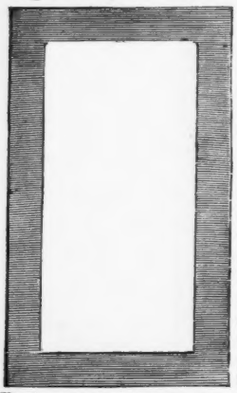


Fig. 1.—THE BACK OF FRAME.

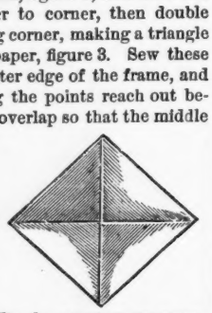


Fig. 2.—METHOD OF FOLDING THE PAPER.

Another style of paper frame, which I like better than the first, is made by cutting strips of paper, one inch wide, and one-half inch longer than twice the width of the frame measured in an exact diagonal. Fold the whole strip so as to halve the width, find the middle in length, fold a point in such a way that the equal arms shall be sides of a right angle, as shown in figure 5. When enough of the pieces are prepared, they will be managed more easily by commencing the frame half way down the side. Sew the first by the point a little over the outer edge of the frame; fasten the second so that the arms shall be parallel with the first, that which lies on one side should have the arm placed *under* that of the first, that on the other side should be *over* the other arm of the first, as shown in fig. 6. When all are sewed on—interlaced like basketwork—fasten the ends on the inner edge of the frame,

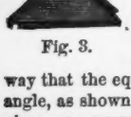


Fig. 3.

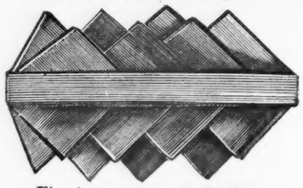
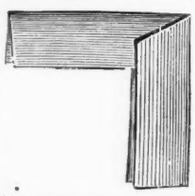


Fig. 4.—PORTION OF FRAME.

trim evenly, and finish by a narrow strip of the same or of gilt when the frame is dry, from varnishing. The corners of the frame will be improved by a rosette of points to hide the irregularity. Figure 7 shows such a frame complete. If oval, the basket-work can easily be carried around the frame, but some other finishing will be needed for the inner edge—an oval of gilt paper cut in tiny points is as pretty as anything I can suggest. If preferred, half the strips can be of light paper, the others dark, when interlaced they will look well, but I prefer the dark, that, when finished, is almost the color of rosewood.



5.—THE PAPER FOLDED.

Home Topics.

BY FAITH ROCHESTER.

A Fashion Note.

I don't pay much attention to the fashions. There is such a variety of patterns, both old and new, the old coming new again, "as round and round we run," that no woman can tell what is the "very latest style," unless she "gives her mind to it" to a degrading extent. Amid the conflicting reports I hear at last one announcement that gives me pleasure: "*Simplicity is elegance now!*" Indeed! When was elegance anything else? Here we are all bunched and upholstered and tied back, with ruffles and shirrs, and pleatings, and pipings, all over us, in dutiful obedience to Fashion's behests, and *now*—"simplicity is elegance!" Here are our best silks and satins all cut up and shirred, and plaited according to directions, and it is no easy matter when the eye is wearied, and the taste nauseated with fussiness upon fussiness, to get rid of our ruffles and plaitings, and straighten and press out the slashed and shirred goods—into elegant simplicity.

I knew it would come to this—though after all I doubt whether it has really come; an era of simplicity in dress, a little rest from the long reign of "fuss and feathers." It cannot have come to stay, for woman is not yet sufficiently educated to understand the reason and use of clothing, and the first principles of beauty and art. The earliest, or barbaric, idea of dress was mere ornamentation—paint and feathers, and tinselry; and woman has not outgrown it. Thousands of women individually know

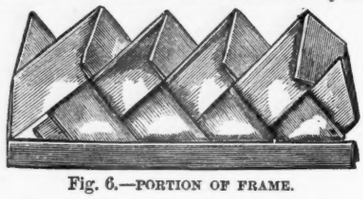


Fig. 6.—PORTION OF FRAME.

and keenly feel how disgraceful and degrading this is, and they wear clothes which they emphatically condemn as uncomfortable, inconvenient, and ugly. They conform to the changing fashions, avoiding the most glaring outrages, because singularity in dress, without great wealth or beauty to back it, is social martyrdom, affecting not their own happiness alone, but the comfort of their friends. Few of us are as independent, in this respect, as we might be. Most of us could wear fewer ruffles and furbelows, without any loss of self-respect, or of the esteem of the community at large. We might all help to create the public opinion, that good comfortable and serviceable fabrics are more important than pretty trimmings, and that comfort and convenience of clothing are essential to genuine beauty and grace.

A Fashion for Mothers to Keep.

The warm, colored, outside drawers for little girls ought not to be given up. Many still wear them, but I think they are less common than they were a few years ago. Woolen under-drawers reaching to the ankles are necessary for girls and women in winter. These being the real "under-clothing," it is hardly reasonable to put white cotton drawers over them—the same as are worn next the body in summer. For warmth and protection, strong, colored, woolen cloth is the best that can be found. Being an outer garment in reality it seldom needs washing, and to most mothers this is a recommendation. Fastened with a band below the knee, the dress skirt will usually conceal the drawers, and when exposed there is no sacrifice of modesty. It is such a serious task to keep the long merino stockings darned on the knees, that I think we do well to encourage a style of dressing the lower limbs, that relieves us from this needless labor. The banded drawers, being loose over the knee, are not so easily worn through, and are more easily mended. Please, fashion makers, consider well these very important things for the sake of all poor and overworked mothers and their children. Make the fashions graceful and pretty, and teach us by precept and pattern that "simplicity is elegance!" Let us, who have the fashions to follow, hold fast that which is good—among other things, the colored winter drawers for our children.

Childrens' Brains.

I have been looking over, with interest, one of the series of American Health Primers, on "Brain Work and Overwork." One thing that interested me was, what I found incidentally about the nourishing of childrens' brains. It has long seemed to me that children are often stunted and defrauded mentally by their unhealthy ways of living. Pure air, good food, and drink, plenty of sleep and recreation, and healthy modes of mental activity, are all essential to the proper growth and development of the brain. It is sometimes the case that the child's food contains too little nourishment to supply the needs of both body and brain, and one or the other is enfeebled as the result of this deficiency. Sometimes the food supplied taxes the digestive organs so greatly as to make mental labor almost impossible, and the child is dull and slow to learn. This may be one result of munching confectionary and indulging in rich cake and pastry. I know of children who are habitually fed with rich food and confectionary, but who have such good constitutions and so active an out-door life in pure air that they contrive to grow and keep from actual sickness most of the time; but when they go to school they make very little progress, and are a constant trial to their teachers. When I hear

Fig. 7.—THE FRAME COMPLETE.

about this from the teachers, or know of the severe sicknesses that sometimes cause their removal from school, I always wish I could change their diet. If to this lack of good nourishment be added, as is often the case, habitual exposure to cold during cold weather, from lack of sufficient clothing, the case is still worse for the growing brain, as well as for the growing body. Vitality, which should be spent upon growth and repair, is unduly drawn upon to keep up the necessary warmth of the body. When the surface of the body is not kept at a proper temperature either by the atmosphere or by warm clothing, or by both, the circulation of the blood is disturbed, and nervous force or vitality is drawn from some internal organs, which are weakened thereby, and perhaps become permanently diseased in consequence. It seems to me a great piece of cruelty to send children to school poorly fed and insufficiently clothed, so that the poor body is constantly uneasy in some way and unwilling to give the brain a fair chance to do the work required. To such a child the tasks of school seem hard and distasteful, and if it is forced to do them under such conditions, it is at the expense of the health of both brain and body.

Pure air is absolutely necessary to the best conditions—pure air all of the time, night and day, indoors and out. The blood is the building material of the whole body, brain and all, and this is made of our food, good blood or poor, according to the food and drink we take, and in proportion as it is cleansed by pure air at every breath taken into the lungs. Exercise of any organ is necessary to its best development, but there is more danger, under present educational systems, of over-working the brains of children than of under-working them. Teachers sometimes sneer at this idea. "If you could see," they say, "how lazy the pupils are, how little work it is possible to get from most of them, by our best endeavors, you would see that it is the teachers who are over-worked, instead of the pupils." Yes, I do see, and I most heartily pity the teachers. The children at school seldom do an unreasonable amount of work, provided they were in any fit condition to work at all, which most of them are not. And what can the poor teachers do? Few of them are intelligent enough to know what is the matter, and, to tell the truth, many of the teachers are in the same predicament as the pupils—incapable of doing their best work because of impure air, bad food, stimulating drink, improper clothing, late hours, too little wholesome sleep, and a resulting bad condition of the improperly kept brain.

There is a deal of talk nowadays, on both sides of the ocean, about our systems of education. Every body sees that on the whole children are not educated as we could wish. It is my belief that the parents need exhortation and reproof more than any other class. They must send their children to the school in a much better condition.

Keep the Little Folks Healthy,

and nature alone will do the work to a surprising extent. That is to say, she alone will do better work for a healthy child who has a good home than all your educational systems put together can do for a sickly child with poor home influences. Let these healthy children grow up to be healthy teachers and parents, and this muddle about education will clear itself up. Healthy children love to learn. Knowledge is the natural food of the mind, and they crave it. They do not always like to "sit on a bench and say 'A,'" but they want to know about everything, and healthy teachers and parents love to answer the questions they ask. At present it is a common thing for both teachers and pupils to be over-worked, and to have to leave school for a period of brain rest. Sometimes the breakdown is sudden, but the worst cases often come about so gradually as scarcely to seem like breakdowns until the work of exhaustion is so complete as to be almost hopeless. These cases take a long time for recovery, and sometimes entire recovery is impossible. It is a wicked thing for parents to be careless of their children's rights in this respect. When the whole of life is a school, and education is never finished, how foolish to be in haste; for here especially "haste makes waste." A tired brain should be thoroughly rested by each night's sleep and nourished by each day's food and air. If this is not the case, it becomes gradually impoverished. If this takes place while the brain is still growing, or in youth, the case is very sad. This furnishes a satisfactory explanation to the many cases that we know of early precocity and mature stupidity.

Staining the Book-Case.

Our book-case is made of plain pine. When it was made we could not afford glass doors, nor paint, nor varnish. The grain of the pine was very pretty, but it became a serious trouble to keep it clean. Now we have stained it with good success, I think; and next week I think we will add a little varnish. But I am pleased with the staining, and I will tell how it was done. I said I would do it myself, and I looked up a recipe. It said, "use tobacco," but like little Robert Reed,

"I'll never use tobacco, no!"

I haven't a kettle that I could defile by boiling up tobacco in it, so we must have something else. The painter, near, furnished a stain made of burnt umber and some mixing material. I know there was turpentine in it, and I think there was oil. I know there was before we got through with it. It seemed simply a thin paint, and as it covered up the grain of the wood (we tried it first on a pine box); I didn't like it. The painter furnished a fluid (seemingly turpentine) to thin it, but even then it failed to show the pretty grain of the pine. I wet a cloth in kerosene and rubbed off the stain, and lo! I had just what I wanted. We quickly colored our book-case, and it looks as much like black-walnut as any stained wood I ever have seen.

A Neat and Easily Made Lamp Mat.

A lady friend favors us with a sample of a paper Lamp Mat, from which the accompanying engravings are made. The construction of this household ornament is very simple. Any kind or quality of thin paper may be used; the one in question is made from an ordinary newspaper, but a more showy mat would doubtless result from using a pleasing shade of paper, or even four well chosen colors—the number of strips in the mat. A single strip is shown in fig. 1, and consists of a piece of paper, nearly a foot in length—this will depend somewhat on the size of the mat desired. Each of these strips of paper is folded smoothly so as to be of six or eight thicknesses, and as wide as one half of the required width of the smooth inner portion of the mat. The ends of the

Fig. 1. STRIP OF PAPER.

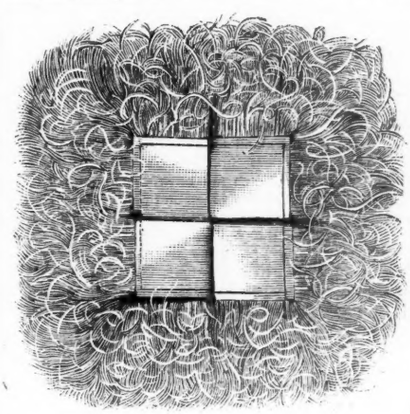


Fig. 2.—THE LAMP MAT COMPLETE.

strip are cut with scissors into uniformly fine shreds, leaving a portion in the center twice as long as wide. The four strips, thus prepared, are then placed together, in the form of a square, one end above and the other below its neighbors, and stitched in place by a fine thread. In this way the ends of the four strips make an entire border to the mat, consisting of the long fringe of the finely cut ends of the paper as shown in fig. 2. The cutting of the fringes is the hardest part, as it must be done with care that the shreds are straight and uniform in thickness. The whole work can be made in an hour, and with a slight outlay for pretty colored papers, a useful and ornamental mat can be cheaply and quickly provided for the lamp.

A Handy, Hanging Match Holder.

Our little match-holder that hangs below the oil chamber of the student lamp, is one of the appreciated conveniences of the household. In fact, we have one for each large lamp, and wherever the lamp goes, the matches are there ready to be used in lighting it. The latest comer, the neatest, and "the one for the parlor"—we use it for the sitting-room—is made with an egg-shell for the cup and is covered with worsted, and decorated as shown in the accompanying engraving. A wide range for the exercise of taste is allowed in the construction of this little convenience. The cup may be of tin or china, and the covering of Bristol board with initials, or the word MATCHES worked on—but, to our notion, this latter is not called for; in this age and country matches are known by all.

A LAMP MATCH HOLDER.

Decorations for Humble Homes.

To such as would gladly make their plain parlors a little more attractive, and whose walls must go unadorned, if they cannot manufacture ornaments themselves, the following hints will be acceptable.

STATUARY.—Doubtless some of your readers have old-fashioned Plaster of Paris mantel ornaments that a quarter of a century since were the admiration of all of the members of the family, but which, long ago, stained and faded by time, were consigned to the garret. Some of these ma, be converted into very pretty "bronzes" by the application of bronze shoe-dressing. Those that are gaudily painted in red, blue, and green cannot be bronzed in this manner, as the color would not be uniform. Of course, none of them will rival Rogers' Statuary in elegance, but to eyes unskilled in such matters, the deception might not be noticed, and very few would ever recognize old friends under such a guise.

A RUSTIC CORNUCOPIA.—If you are making a wall-basket as a receptacle for dried grasses, grain heads, etc., do not cover it with wall paper, but try to give it a rustic look in harmony with its contents. Cut a three-cornered piece of card-board; lap two edges and tack them together with needle and thread, making a long horn. Trim the top off with scissors, so that the back is pointed upwards and the front curves downwards three or four inches lower than the back. Cover and line it by pasting on brown wrapping-paper. Then cut strips of the same paper three-fourths of an inch wide, and fold them into what children call "cat-stairs." Tack these closely together around the horn, beginning at the curved top, being careful to preserve the same curve all the way to the point. Gradually cut the strips narrower, as they should not be more than one-fourth of an inch wide, to go on neatly at the point. Finish with a coat of varnish, and have a neat, lasting ornament for your wall. E. K. B.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

An old negro, it has been said, replied when asked: which is of the most value to man, the sun or the moon? "Why! de moon, cause it shines ob de night!" Like the colored man many of us are apt to forget the value of blessings when they come to us regularly and silently as does the light of day from the sun. The day is day because the great orb of light and heat, situated so far away in space, makes it so. And the moon which in its fulness lights up the night does it with rays which are borrowed from the sun. Moonshine is sunshine, and may be explained in much the same way that the mischief-loving boy makes the bright sun to shine in his classmates eyes across the school-room, by means of a small looking glass or a bright piece of tin. The sun shines on the tin and the light is changed in its course, and can be directed this or that way by turning the tin.

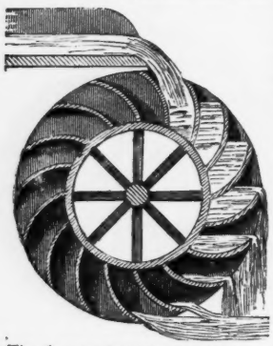


Fig. 1.—AN OVER-SHOT WHEEL.

In like manner the sun, after it has gone down out of our sight, shines on the great face of the moon, and the rays of light are changed in their course, and some of them fall upon the earth and make the pleasant moonshine or moonlight. The sun then gives us both the light by day, and the light by night. We must not therefore think any the less of the moon, because were it not in the heavens, we should have no pleasant moonlight nights. Besides giving us light and heat the sun does a great many other things; or I should say, because it gives us light and heat it is able to do much for us that may at first sight seem to have no relation to the sunshine.

THE SUN IS THE SOURCE OF OUR WATER-POWER.

But what is Water-Power? a thousand readers may ask. It is the force exerted by falling or rising water—running water is falling water. You have been told in previous *Talks* that all bodies fall because acted upon by the force called Gravitation, and from this you might conclude that water-power was due entirely to gravitation. What is water doing or trying to do when it falls? It is trying its best to get to the center of the earth, the center of the action of gravitation, and comes to rest only when it cannot get any nearer that center. But why does not all the water soon come to a state of rest? It is here that the sun comes in, it making the rain to fall and the rivers to run. The warm rays of the sun, shining on sea and land, silently change the water into vapor and lift it up into the clouds, or rather lift it up and clouds are made out of it, which after a time give up the water, and it falls on hill and plain as rain. The rain fills the spring, away up on the mountain, and feeds the brook as it flows down the valley, turning here a mill, and there a factory, until it, joined by other streams, becomes a river and flows on to the ocean. The sun makes the rivers run, and the running rivers give us much of our best water-power.

Fig. 2.—AN UNDER-SHOT WHEEL FOR RAISING WATER.

SOME DIFFERENT KINDS OF WATER-WHEELS.

The power that is in falling water is applied to various uses by means of water-wheels, which are turned by the stream, and these wheels turn other wheels in the machinery of the mill or factory, and thus the grain is ground or the cloth made. These water-wheels are of various kinds, and are either those that turn "over and over" or *vertical* wheels, or *horizontal*, which turn "round and round." Of the vertical ones there are three kinds, the *over-shot* the *under-shot* and the *breast-wheel*. In the over-shot the stream of water falls into "buckets" at the top of the wheel and acts principally by the weight of the water. An over-shot wheel is shown in fig. 1, where it will be seen that one side of the wheel is made much heavier than the other by the water, and that side is constantly made to go down, when the water flows out, while fresh buckets are filled at the top and the wheel is kept in motion. In the second kind of vertical wheels the stream strikes against the boards or paddles at the bottom, and acts entirely by the force of the current. This kind of water wheel is placed directly in a running stream where the current is swift enough, otherwise a dam, and a "race way" is provided, with sufficient fall to give the required force. In figure 2 is shown an under-shot wheel, used for raising water. The running stream turns the wheel, to which a number of cups or buckets are attached, and are carried up and emptied into a trough as the wheel revolves. In the third kind, the breast-wheel, the water rushes against the side of the wheel, fig. 3, about midway between the top and bottom, and the work is done by a combined force of the flowing water and its weight when falling. The under-shot wheel is the one most commonly made by children in their play in the little streams in spring time. The over-shot, for the same amount of water flowing, is the most powerful of the three. The *horizontal* or turbine wheels, those that go "round and round," must be treated at another time.

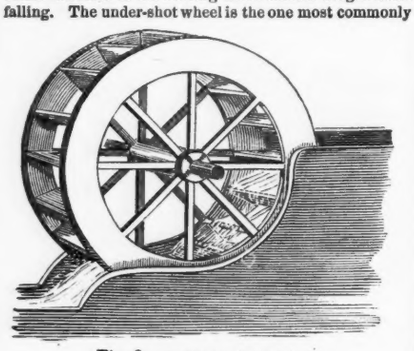


Fig. 3.—A BREAST-WHEEL.

SEALS AND THEIR WAYS.

Did many of my young readers ever see any Seals? Yes, doubtless, a good many of you. The showmen sometimes have one in their travelling menagerie; and many of the larger cities, as Philadelphia with its Zoo, and Central Park in New York, have Seals, and their cousins—the Walrus, Sea Lion, etc., on exhibition. A few weeks ago the writer was out in a boat in Boston Bay—"down the Bay"—as they call it at the "Hub," and what did he see but a lot of seals! The first ones that I saw were a considerable distance away, and were upon some low rocks just above the water. With the aid of a spy-glass they could be distinctly seen, and were at play, having a real good time. Those of you who have not seen these strange-looking sea animals, will get a pretty good idea of how they look from the picture here given of one, which is very common in Greenland and the other cold regions of the Arctic Ocean. The common seal, the one I saw, when full grown, is about six feet in length, brownish on the back and yellowish below. The head is much like that of a dog, and the voice also like that of a dog—a sort of a bark. The seal can close his ears and nostrils water-tight, which it does when it dives, and remains under the water for a quarter of an hour or so. The seal has four legs, but they are odd-shaped ones, and not of much good for travelling on land. A seal on land is very awkward. They are easily tamed, are docile, and can be taught many things, as to to sit erect, bow, kiss the hand, shoulder a gun, shake hands (!), turn a hand organ, and many such other amusing things. Seals are very valuable for their skins, also for the oil which they furnish. The Esquimaux live very largely upon the seals, which they catch in great numbers in their cold, northern homes. It is told—and with good reason for believing it—that a fisherman on the coast of France acquired the knack of calling the the young seals to the side of his fishing boat. "One of them so small and plump in its baby sealskin, and large wondering eyes, tempted him to steal it from its mother, and take it home to his children to raise as a household pet. In course of time the young seal was weaned from the nursing bottle and placed on a diet of young herrings. This seal became greatly attached to all members of the family, particularly the children, and would show great distress when not allowed to go with them in their boats. He always accompanied his master when tending the herring weirs, either swimming alongside the boat, or sitting upright on one of the seats. It would lie for hours stretched out under the kitchen stove. On warm sunny days it would swim off to the neighboring ledges of rocks, and mix with its friendly relatives, returning at evening to have a romp with the children in the water."

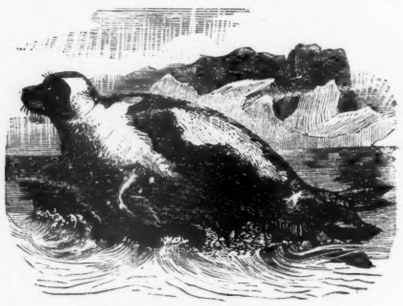


Fig. 4.—A GREENLAND SEAL.

Our Puzzle-Box.

NUMERICAL ENIGMAS.

1. I am composed of 28 letters:
My 5, 18, 16, 11, is one of Cowper's poems.
My 17, 6, 19, 20, is a means of security.
My 26, 27, 8, 12, follows the sun.
My 5, 13, 11, 15, 20, is a fish.
My 1, 11, 21, 25, 17, 10, is a deadly conflict.
My 3, 2, 4, 14, is obtained on Broadway for five cents.
My 9, 22, 28, 23, 24, is in every blacksmith shop.
My whole is a proverb. GOODY TWO SHOES.

2. I am composed of 19 letters:
My 8, 9, 2, 10, 11, is what an elephant is.
My 3, 16, 17, 18, is a title.
My 13, 2, 17, 18, 19, are what dogs and rattlesnakes have.
My 15, 4, 1, is a sort of margin.
My 1, 7, 2, 5, is an article of food.
My 19, 6, 12, 14, sometimes kills things.
My whole is excellent advice. EDDIE G. W.

CONCEALED ANIMALS.

1. Do you admire that statue of Rogers?
2. I think that tub a trifle too small.
3. I would rather have a larger one.
4. Let me know, briefly, what you do want.
5. Jim, are all the doors locked?
6. Did you ever probe a ripe watermelon?
7. Yes, with a real sharp knife.
8. Tell the farmer to bring oats and hay.
9. Lend me your knife, Will, I only want it for a minute.
10. Jones lost a great deal of money.
11. I was able to give him a little help.
12. You always do good if you can.

METAGRAM.

Find a word of five letters, from which make ten nouns, six verbs, an adverb, and a preposition.

ANAGRAMS.

1. Second credit.
2. Give a net.
3. Decent shrews.
4. O Tom spent pen
5. Do rub seven.
6. O yes! grunt.
7. Saul got lace.
8. Sha'n't miss tape.
9. Ruin at last.
10. Dive at tunnel.

POSITIVES AND COMPARATIVES.

1. The bark of a tree; one who puts sharp points on a horse's shoe.
2. A parting visit; a great power.
3. A willow twig; to dry up.
4. To walk; to wound with a horn.
5. A disease; a place for food.
6. Exalted; to bribe.
7. Need; varnish. BESSIE.

SCATTERED SQUARE.

(*Explained in the August number, page* 318.)

O black are the clouds,
I fear it will rain;
Let us stay near the house
Till the stars shine again.

DIAMOND.

1. Found in a church.
2. A title.
3. A girl's nickname.
4. A study.
5. Uproars.
6. What we all do.
7. Part of a cherry.

XERYION.

CROSS-WORD.

My first is in laughter but not in joy,
My next is in youngster but not in boy,
My third is in letter but not in book,
My fourth is is river but not in brook,
My fifth is in lantern but not in light,
My sixth is in scuffle but not in fight,
My seventh is in narrow but not in thin,
My eighth is in brandy but not in gin,
My ninth is in market but not in shop.
My tenth is in dandy but not in fop:
My whole is where the children love to play,
And sportive pass the merry hours away. EFFIE.

TRANSPOSITIONS.

(Fill the blanks in each sentence with the same letters transposed—*e. g.* The——began to——very strangely.—Ans. The *cat* began to *act* very strangely.)

1. She said she could not sew the carpet because there was such a——of——.
2. I heard the lamb——under the——.
3. From the fruit store she brought home——and——.
4. You had better buy articles at——with great——.
5. ——is just the opposite of——.
6. Do not go into the——if there is any——of your taking cold. The old——is out there.
7. I would not——them from earning their——.

TRANSPOSED FLOWER GARDEN.

1. Chay hint.	6. Mobin luce.
2. Fun cat tyd.	7. Tin place.
3. Gon ten time.	8. Peat ewes.
4. Haste Tym.	9. Tom fret gone.
5. Limar dog.	10. Viper Suncy. ISOLA.

CHARADE.

No. 1. My first denotes one,
My next weighs a ton,
Third—vowel and semivowel,
Fourth—where millions dwell:
Now join these things and find the name,
Of dignitary, high in fame,
Judge, lordship, majesty or sage,
Perhaps philosopher of the age. GALAXY.

DECAPITATIONS.

1. Behead what we find in almost every house, and leave a woman's "crown of glory;" behead the latter, and leave a daily need.
2. Behead one fish and leave two others.
3. Behead a character known in music, and leave the instrument upon which it might be played.
4. Behead a bird and leave a suitor.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

CROSS-WORD.—Hebdomadal.

ANAGRAMS.—1. Biographical. 2. Bricklayers. 3. Diamonds. 4. Archdeacon. 5. Vouchsafed. 6. Enumerate. 7. Imperialist. 8. Benignant. 9. Undertaking. 10. Unanswerable

TRANSITIONS.—1. June: dune, done, dole, doll, dull, duly, July. 2. Two: too, ton, son, sin, six. 3. Came: cane, wane, want, went. 4. Mine: fine, find, fond, bond. 5. Pool: poll, toll, tall, tale, take, lake. 6. Book: hook, hoot, soot, slot, slat, slay, play.

POSITIVES AND COMPARATIVES.—1. Halve, Havre. 2. Tape, taper. 3. Ye, year. 4. Rap, wrapper. 5. Pill, pillar. 6. Great, grater.

DECAPITATIONS.—Gone, one. 2. Gasp, asp. 3. Meat, eat.

NUMERICAL ENIGMA.—Consider well, then decide positively.

DOUBLE ACROSTIC.
Ivanhoe—Marmion.

I— dlo —M
V— est —A
A— ste —R
N— y —M
H— ayt —I
O— ll —O
E—nsig —N

CHARADES.—1. Castanet. 2. Subordinate.

PICTORIAL ANAGRAM PROVERB.—"Two of a trade can never agree." Items: One, tea, rat, grave, deer, fan and cow.

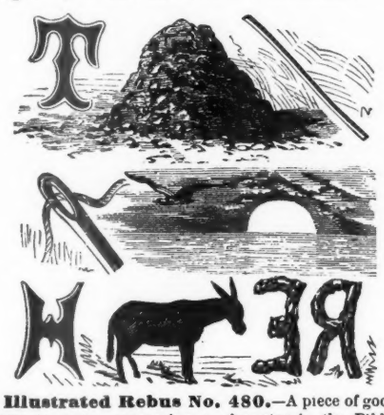
The Doctor's Correspondence.

"A CANARY BIRD CHANGED INTO A SNAKE."

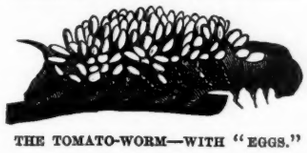
A correspondent, "G. W. R.," writes under the above startling heading that: "A few days ago, a family in Nicholas County, Ky., returned to their house after some hours absence, found a snake in the cage where they had left a canary. It had crept into the cage, dined on canary 'au naturel,' and was unable to retreat between the wires. This individual could not lay claim to the common wisdom of serpents. It was called a *house* snake. That fine meal was its last."

INSECT EAT INSECT.

Yesterday's mail brought us a little wooden box, in which there was the remains of a large, green "worm" (Tomato-worm), having what looked to be a lot of small white eggs all over its back. It was these "eggs," doubtless, that led the boy, large or small (men are boys of a larger growth) to send the worm. It is not the first time that this same kind of worm and its "eggs" has been brought to my notice. Recently a man came to me out of his tomato patch with one in his hand, and a question as to the "eggs." The last time I called at the family drug store, the clerk showed me "a great curiosity." It was a "great, green worm, with its eggs all over its back." The man of pills and powders had gone farther than some of the others, in stating that the white, oval bodies, which stood on end over the upper surface of the Tomato-worm were the eggs of the worm that was bearing them. The engraving here given shows the worm with its curious load. In the first place: Can the white "eggs" be those of the "worm?" The story of the changes through which many insects pass in their growth has been frequently told, but it will bear a brief statement here. In the growth of the Tomato-worm, for example, there is the egg which hatches into the *larva*, or "worm" state. From the larva state the insect passes into the *pupa*, where, unlike the "worm," it is inactive, and does not eat. Out of the pupa, the mature, or perfect insect develops, and in the case of the Tomato-worm it is a beautiful moth. It is the perfect insect, or last stage from the egg, that lays the eggs, and the circle is completed. It is thus plain that the green "worm" did not lay the "eggs" which it carries on its back. But where did they come from? All insects do not live on plants; some, yes, many live on animals, and some make their home within the bodies of other insects. Our enemy, the Tomato-worm, has its insect enemies. A minute, fly-like insect, with a sharp probe, pushes a number of its eggs into the caterpillar's body when it is quite young. These eggs hatch, and the *larvæ* from them feed upon the substance of the Tomato-worm. This may be one reason why the Tomato-worm ate so much of the Tomato vines, he having so many mouths to feed. When these little "worms" of the fly were ready to go into their *pupa*, or resting state, they made their way to the surface and spun, each for itself, a pretty white oval cocoon, which was fastened by one end to the back of the Tomato-worm. Doubtless, in many cases, the infesting worms kill the large green ones upon which they feed, and are thus beneficial, our friends—because enemies to one of our enemies.



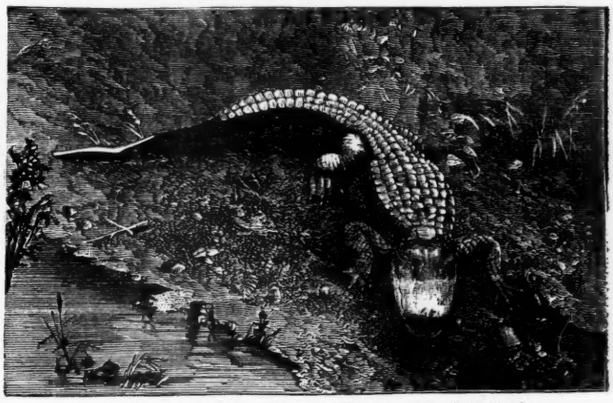
Illustrated Rebus No. 480.—A piece of good news to many, concerning a character in the Bible.



THE TOMATO-WORM—WITH "EGGS."

Alligators and Their Ways.

Worcester's Dictionary says: "The Alligator of North America is a formidable and ferocious creature, prodigiously strong, and sometimes attaining the length of eighteen feet." What a list of long words to tell us what the Alligator is! But as long words are in order, let us give the scientific name of this formidable, ferocious and prodigious animal, which is, *Alligator Mississippiensis*. (The name has i's (eyes) enough for three alligators). From the long tail end of the name it might be supposed that this animal had something to do with the Mississippi River, and such is the case; its muddy banks and sluggish waters are its native haunts. One of the leading features of the alligator is its mouth, it being very large, extending far behind the eyes, and furnished in each jaw with a single row of teeth, all of different sizes, standing apart from each other. The mouth is evidently made for taking food, and that in large pieces. The alligator has long enjoyed the reputation of having a good appetite, and, when full grown and pretty hungry, will not object to a man for a meal. Some one has remarked that the alligator has a very "open countenance," and from what we have seen of them we are of the same opinion. After the head comes the long tail—with a body on four short legs between—and is the part which is the most used when swimming. For travelling on land, the heavy tail is of little or no use, and had better be off; but then, it is handy as a weapon of defence in times of danger. Alligators take no food in the winter, and this may account in part for their great appetite during summer. While going without food they bury themselves in the mud of the river. In the spring the alligator lays fifty to sixty eggs, about the size of those of the goose, which they cover with sand, and leave to hatch by the heat of the sun, though the mother does not go far away. When the young alligators come from the shell they are about six inches long; and, like ducks, take at once to the water. Little alligators are frequently caught and kept as pets. The engraving above was made from a photograph of one thus employed. He stood very well to have his picture taken. Persons who go South to spend the winter frequently bring a young alligator with them on their return in the spring, and it is not an uncommon thing to find one or more, from two to three feet in length, sporting in the water tank of a gentleman's plant house, or even basking on the sunny slope of a pond in the garden. While young they are harmless,

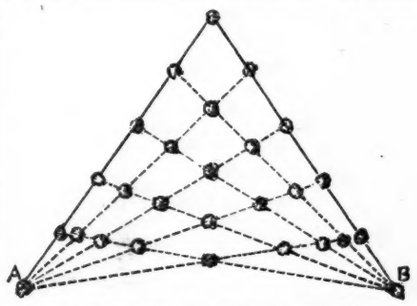


A YOUNG ALLIGATOR.—(*From a Photograph by Schreiber.*)

and covered as they are with shiny plates or scales, are interesting animals; perhaps doubly so, when one knows the hideous aspect, disgusting habits, abominable smell, etc., of the full grown ones in the wild state. There are instances on record where these "pets" have escaped from their confinement and turned up in places least looked for, and at times when they were not expected; in fact, have done harm by biting infants and children. An alligator that has reached any great age is not to be trusted. A safe alligator is a dead one, and we do not care much for them even then. It is told for a truth that in some parts of the South, in the home of the alligator, they hunt them, using young negroes for bait. The colored lad is sent into the water, and when the "formidable, ferocious creature, prodigiously strong," takes after him, he (the alligator, not the boy) is shot in the eye by a bullet, by a marksman concealed in the bushes on the bank. For our part we do not envy the lad—attractive as he may be to the alligators upon his track.

A Strange Way to Set Out an Orchard.

The boys and girls are constantly asking me to answer all sorts of questions. The last one is that which relates to the strange way in which the trees were set in an orchard. I do not know whether they were apple, or pear, or cherry trees, as far as that goes it does not make any difference. The story runs something like this: An old country Squire planted a number of trees when his son was born, and on the twenty-seventh birth-day of the young man, there was a tree for every year, and yet these twenty-seven trees were standing in ten rows—with six trees in each row, or six times ten, which makes sixty—the age of the father. The great question with the children is: How did he set the trees? It is certain that each tree must count in more than one row, and must be so placed that the rows always contain six trees, no more and no less. I have found out the way and can best explain it by the diagram which is here given. The trees are set in a triangular-shaped orchard, and very irregularly as regards the distance between them. The dotted



PLAN OR DIAGRAM OF THE ORCHARD.

lines show the rows, five of which run out from *A*, and the same number in like manner from the corner *B*. No further explanation is needed than that which the diagram gives. It can not be recommended as an economical method of setting an orchard; but if, like the Squire, you have only twenty-seven trees, and want ten rows, with six in a row, there is no other way to set them, as ar as I know to make the strange orchard. U. H.

A Lantern to Light His Way.

There is something frank and generous in the very appearance of large, well-formed, deep-colored, matured pumpkins. They have not the delicate bloom upon their cheeks that we find on the peach; they do not hang in graceful clusters, as do the sweet and juicy grapes, but they have an important place to fill in the list of farmer's fruits. Though coarse and unpleasant to the taste when "eaten from the vines" (?) the pumpkin is not beneath the notice of the boys of the country. Plant no pumpkin seeds, and let no vines run among the corn, and you surely take from the country youth a source of autumn pleasure that nothing else can replace. It hardly need be said that I now refer to the "Pumpkin Lantern," or "Jack-Lantern," as it is frequently called. What boy of any considerable size has not seen one of these truly mirth-provoking things! Yes! What boy has not found himself watching, day by day, some early pumpkin which he has in some way marked for his own—and a little later has made his jack-knife do its artistic work in chiselling out the astonishing mouth with its double row of notches! Who has not rimmed and gouged away at the irregular eyes—and by removing a three-cornered piece of the "shell," made the organ of smell? What boy has not had desperate failures in trying to make a fine, noble-looking face, or perhaps has more frequently tried to imitate rather the countenance of some person whom he has seen, and thought peculiar in some part of the face. A crooked nose is often exaggerated, and if the mouth is large, or small, it can be easily made larger or smaller.

I do not remember the first time I made a "Jack-Lantern," and I have no recollection of what became of it after it was made; it probably was a sorry imitation of some human face and the pumpkin was doubtless a small, green one, as such can be easier cut, and earlier in the season. Whatever the first one may have been, I remember one that "we boys"—it was a partnership concern—made when I was old enough to own and handle a good jack-knife with some dexterity. George and I—whom you may remember went after the squirrels and fell asleep in the woods—were the architects of the "Lantern" in question. It was made from the best pumpkin that a ten-acre field of corn could afford—it was not the largest, as that would have been too big, and we could not have handled it so well—but was of fine shape and had a smooth skin and a thick rind that made it valuable. It was made with no great care, only that the face was to be, as we called it, "outlandish." We wanted it to be "the worst-looking 'Lantern' that you ever saw." Well, I guess we succeeded, and when the candle was put in and lighted, its face, though radiant with a "warmth of expression," as artists might say, in beauty it was far inferior to that of a wax doll. We had often made "Lanterns" before, and had frequently shown them unexpectedly to each other, and made them call on the older members of the household, just when they did not expect a visitor at the door—or suddenly let the bright-eyed, great-mouthed monster glance in at the open window when all else was darkness within and without.

Now, we did not have any dislike to neighbor Morgan's oldest boy; he was "one of us" on many a play day; but as things were arranged, he knew nothing of the "Jack-Lantern" which George and I had made. The Morgan boy attended school at the village academy—we didn't—and went to and from home on horseback. We knew about the time he returned, and the thought struck us—I do not recollect which was struck first—that it would be a good thing for the Morgan boy, to stir him and his horse up a little, as he (the boy) was altogether too slow on his way home, thus avoiding some chores that would otherwise naturally fall to him. The "Lantern" was too heavy for us to hold in our hands, so we found an old barrel near by, which we placed upon the roadside—it was already dusk—and rested the "Jack" upon it, with its face toward the fence, and blindfolded with a cloth. Soon after the candle had got to burning nicely, and the darkness had settled upon all things, we heard the slow footsteps of the Morgan horse. How funny we all felt behind that barrel, almost holding our breaths and fearing it might be some one else, that we would not care to see, or have see us. But everything was well for us, and shortly the boy, thoughtless of surrounding preparations for him, and possibly deep in some algebraic problem, and the lazy horse, reached the point opposite us. George wished to turn the "Lantern" upon him just before he got to us, but that would not have done, as the horse, slow and lazy as he was, might have wheeled and thrown the young rider. All we wished to do was to speed him on his homeward way. We threw off the blindfold, and gave the pumpkin a half turn, and—and—I do not think we shouted, but it may be we did, but the Morgan boy had something to say, and as for the horse—he was busy with his legs, and more so than he had been for many a day. The surprise was not great enough to frighten the boy off of his horse, as it might have done, and we are glad it did not; but it gave new life to the burden-bearing animal that did not die out until the rider was carried to the horse's stable door. I picked up the fallen hat, and trotted on far behind, and took it to its owner; it giving me an opportunity to tell him that nothing mean was intended—only a little fun—just wanted to light him home, as it were, for the night was a dark one. The Morgan boy was invited to our house on the next Saturday, and we all hands talked the matter over, and came to the conclusion that it might have been much worse. Revolving lights along the sea coast are now frequently used to keep vessels from running into danger; but a revolving "Jack-Lantern"—one that turns upon a barrel head, in the hands of mischivous boys, even though they are all in fun, when used to light up a safe place in a common road, may in itself be the source of anything than safety. Having had the experience, I give it, with the accompanying engraving, sketched from memory, not to encourage the young readers to do the same, but rather to show them in a pleasant way, at least one thing that had better be left undone. UNCLE HAL.

HOW THE BOYS WITH THE PUMPKIN-LANTERN LIGHTED THEIR FRIEND ON HIS WAY.

Western Immigration.

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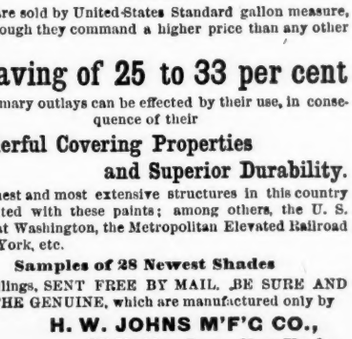

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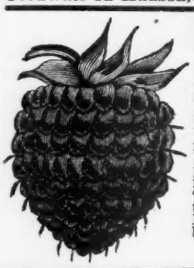

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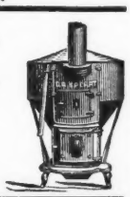

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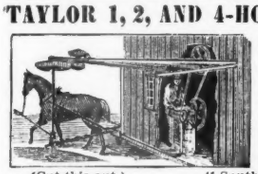

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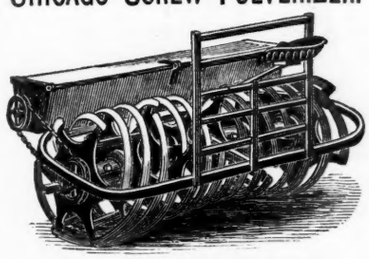

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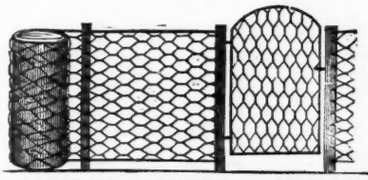

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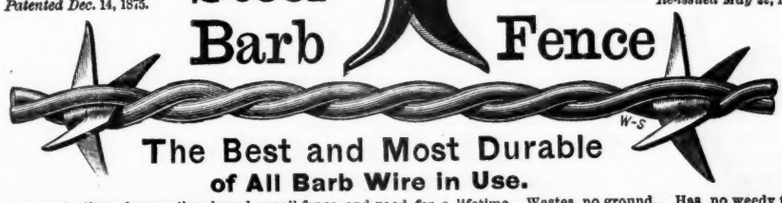

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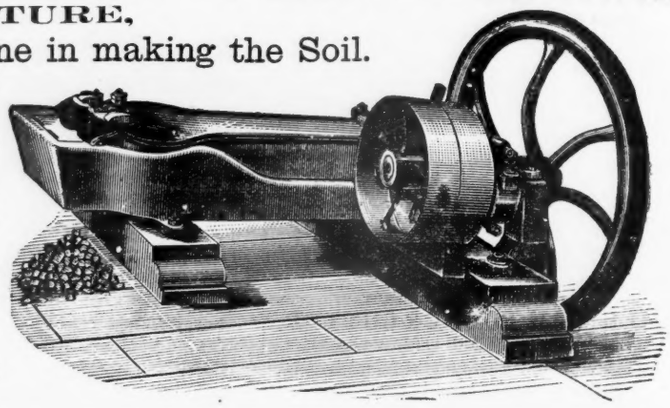

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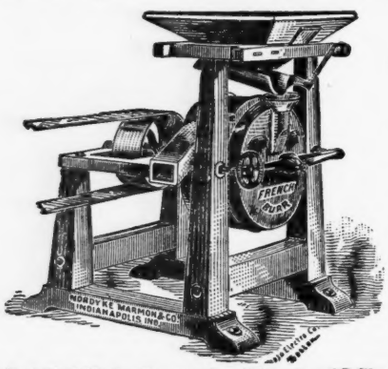

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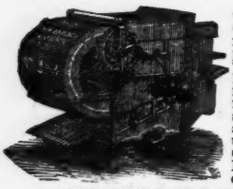

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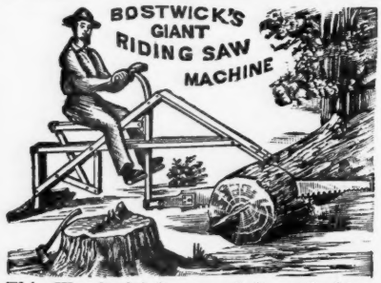

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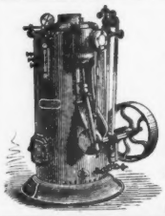

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How deep, how much, etc., etc., to sow or plant 70 different articles, and the fertilizers required. Systematic farming, gardening, and accounts.—Highly commended by Ex.-Gov. Horatio Seymour and the agricultural schools. Price $1.25, and sold by booksellers generally. NATIONAL BLANK BOOK CO., 66 & 68 Duane St., New York.

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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 459.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 38, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

Rust in Celery.—The celery growers of France have united in the offer of a prize of $2,000 for the purpose of encouraging investigation into the nature of the celery-rust, and the discovery of a remedy.

Grass Seed Sowing.—"C. M. H.," Grayson County, Va., asks: "Which would you prefer to do, sow grass seed with winter wheat, spring oats, or buckwheat July 1st?"—Why didn't you add, 'or with turnips August 1st?'—We answer with the crops in the following order: Turnips, wheat, oats, and buckwheat, having never seen grass do well sown with buckwheat if this made a good stand. We would rather sow the grass seed on buckwheat stubble, first harrowing it thoroughly.

Wind Mills.—"R. S. K." The wind mill should be placed in an exposed situation, away from trees and buildings, so that it can get all the wind possible. If small it can be mounted on the barn, as is now frequently done; but it is better to have it stand by itself, and should be as near the well or spring as is convenient.

Alfalfa, or Lucern in California.—"S. C. H.," Downey City, California, writes that Alfalfa can be grown in his region at less expense than any other fodder crop. He says: "Once sown on deeply cultivated land, free from weeds, it is good for ten years, or even more, with us. Twenty pounds is abundant seed for an acre—some think more—but it should be sown thickly. Let it stand thick and it is finer, and more tender.....From seven to nine cuttings can be obtained from it, and from fifteen to twenty tons of cured hay a year made to the acre.... This hay must be cured as rapidly as possible, raked in windrows, and bunched the second day, rather letting it cure in bunches than in any other manner, to prevent the leaves falling off; then housing or "shedding" it soon as possible, sprinkling salt through it, to prevent mould.

"Tumble Bugs."—A subscriber asks if there is any animal that will destroy the common beetle, known as the "Tumble Bug."—The detested skunk lives upon beetles and other insects, when he can get enough, and is a most faithful seeker after, and destroyer of, them. Whether he delights in the peculiar, and, to us, unattractive flavor of this beetle, or eschews the same, we cannot tell.

English and American Implements.—The English manufacturer makes his implements heavy, without much regard to the strength needed. Their forks, whether for spading, or hay, or manure forks, are much too heavy, and are most unwieldy, as compared with the neatly shaped, lightly built, and easily handled American forks.—The English plow is usually three times as heavy as ours, twice as long, and much less easily handled. The cradles they use in cutting their grain would not be used by one of our reapers, and so with many other of their heavy farm implements.

Hillside Garden.—"T. B. B." writes: "I have a garden on a hillside, on a slope of about 15 to 20 degrees. It has been worked only this summer. How can I best place it in condition for next year's gardening? It is a lot of about 4 by 8 rods. I thought of plowing it this fall, and manuring it heavily before plowing. Would it be best to manure this fall and plow under, or manure next spring; it is a rather hard, clayish soil?"—It might do to spread the manure and then plow the ground in ridges running up and down the hill, but it would probably be better to ridge the land with a plow or spade, and then sow on a pretty liberal dressing of lime, slaked with old brine, whitening the whole surface. This will act during the winter, and the manure may be applied in the spring after "splitting" the ridges, when the manure can be turned under with a sidehill plow.

Plant Lice or Aphides.—The number of Plant Lice possible to be produced from a single individual during a season is very great. The following is a table prepared by M. Foujard to illustrate this point:

Generation, or brood.—Produce.
1st, 1 Aphis,
2nd, 100 Aphides,
3d, 10.000 Aphides,
4th, 1,000.000 Aphides,
5th, 100,000,000 Aphides,
6th, 10,000,000,000 Aphides,
7th, 1.000,000.000,000 Aphides,
8th, 100,000.000,000,000 Aphides,
9th, 10,000.000.000,000,000 Aphides,
10th, 1,000.000.000,000,000.000 Aphides,

or one quintillion in a single season. Mr. Huxley calculates if a louse weighs one-thousanth of a grain "the tenth brood alone would, if all its members survive the perils to which they are exposed, contain more substance than five hundred million stout men, to say the least, more than the population of China." The fact that there is no such appalling production of the Aphides is an illustration of the fact that there is a great struggle for existence which this vast productive power is designed to meet in the case of these small insects.

Horseback Riding.—Fifty or a hundred years ago the saddle was quite sure to be found in the farmer's barn, as one of the necessary articles of the farm—but now it is too much put one side for the harness and buggy. At this season of the year, when the roads are bad, the saddle should be more generally used, on the ground of both economy and comfort. Boys, and girls too, should learn the art of horseback riding; as far as possible every farmer should have a horse suited to the saddle.

To Catch Red Ants.—"Mrs. F. E. M.," Monmouth Co., N. J. A number of persons who have tried it, inform us that a plate covered with a thin coat of lard, or other grease, will attract and catch the ants, from which they can be wiped with a cloth, and a new coating of lard put on, and the trap is set again for the pests.

Pedigree in Seeds.—A thorough-bred animal—one that is registered in the herd book and has therefore a pedigree—is the result of a series of generations of careful breeding. Such an animal has had certain characteristics fixed by the process of selection, and possesses the power of transmitting those characteristics, just in proportion to the purity of the breeding and the time it has been carried on. An intelligent breeder of live stock looks as much to the history of an animal as to the animal itself, and is satisfied only when both accord with his ideas of good points, and those brought out in a way that makes them hereditary. When we come to plants, the same laws hold with equal force and importance, but a pedigree is rarely insisted upon in the selection and purchase of seeds. If the wheat is plump and the corn is full and bright, that is sufficient, and questions are seldom asked as to the method by which the plumpness or brightness has been obtained. Consider what a host of new varieties of seeds are thrown upon the market every year, which are never heard of after their first sowing, because they are not the results of close breeding, and therefore have not the property of transmitting the qualities peculiar to them. Pure seed should mean that which has resulted from the in-breeding of a variety, for a sufficient length of time, so that the qualities have become fixed, and will be perpetuated. There is a wide field for seed breeding, and in it our grains and grasses may be greatly improved. A "Herd Book of Blooded Corns" sounds very strange, but may it not be that a pedigree of a "Dent," or an "Evergreen," can be established and the history of it stated by *sires* and *dams*, in much the same way as these terms are used in a herd book of Jerseys?

Fair Tests for Draft-Horses.—A horse should be at his best when in the harness; it is there that he does the greater part of his work, and it is of prime importance that trials in the harness be more frequently made at our fairs. Thousands of breeding stallions are never broken to harness, and if so, are never taught to handle themselves properly with a heavy load. A spirited horse out of the harness does not always mean one that will stand the test of hard work. Breeders of draft horses very generally make their selections entirely by sight, and not from results of trials of strength and endurance. It is our belief, that much more stress should be put on the action of the animal when at work; and any system of testing the horse in the harness, with a heavy load, will lead to an improvement in draft horses.

The Union Stock Yards at Chicago are the most extensive of any in America, if not in the whole world. In a recent visit the writer found much to interest and instruct, and a little that was amusing. The ease, rapidity, neatness, and we may add humaneness, with which the work was done, made us quite in love with wholesale slaughter. The yards occupy 350 acres, and will accommodate 10,000 cattle, 120,000 hogs, and a larger number of sheep and horses. Fifteen hundred car loads of stock can be unloaded, put in pens, fed and cared for in a single day. Those who have not visited the Union Stock Yards, and have an opportunity, should not fail to improve it, and see the work done.

Beech and Chestnut Timber.—"A. P. P.," of Long Island, is about to cut some 40 or 50 acres of timber, consisting of Chestnut and Beech, which have stood for 35 or 40 years, and wishes to devote the ground to the culture of the same kind of trees. He asks, "shall I wait for a spontaneous growth or plant seed? Some of my neighbors say that soft woods only spring up, such as Birch and Pine. How far should the young trees be left apart."—Beech and Chestnut trees are so dissimilar that they are usually not planted or suffered to grow together. The beech is best propagated from seed, the chestnuts spring up readily from the old stumps. The usual plan is to trust to this vitality of the old chestnut roots to establish the new stand, but with beech it is usual to wait for a fall mast, then to scarify the soil under the trees, so that the nuts shall find a soft seed bed—and when the new crop is fairly sprouted, to cut off most of the wood, leaving some trees standing for shade and protection. The young growth is supposed to grow at first very thick—then it should be thinned out for hoop poles, afterwards for charcoal, and finally for scaffolding poles, fencing stuff, or firewood, while the remainder stands for timber.

Barrenness in Cow.—Mr. "T. H. C.," Wilkesbarre, Mass.—The only advice we can give you in the case of your cow, is to convert her into beef as soon as possible: there is no known remedy for confirmed barrenness, and the best course in such cases is to get a cow that will be useful, and not try experiments that are most likely to fail. Of course, if the cow has been sold under false representations, you have a legal remedy.

The Queens Co. Show lost much of its interest this year on account of the reported prevalence of Pleuropneumonia in the county. The farmers, from their long acquaintance with the disease, have a wholesome dread of it. It is only those who know nothing of it, and who in their selfishness and ignorance fortify themselves in a disbelief of its dangerous character, who brave it and repeal laws for its control like the farmers and legislature of New Jersey. Other departments of the show were of usual interest, and with fair weather there was good attendance.

Oyster Shells for Poultry.—"T. B." Certainly, roast the shells before pounding them up. A little nutritive matter is doubtless lost, but the saving of time is of much greater value than the loss from burning.

Seedling Black Walnuts.—Wm. Armstrong, of Wisconsin, writes:—"Last fall I procured three bushels of black walnuts from the neighboring forest, and after leaving them in a dry place until the shucks had become quite dry, I placed them in a couple of barrels; alternately a layer of nuts and then a layer of damp sand; the sand must be kept moderately damp during the winter. During the January thaw I planted them, some in a permanent place by the road side, and others in the nursery, and they have nearly all grown successfully, some of them to the hight of two feet. I would like to know if I could transplant those in the nursery successfully this fall. They will make a splendid wind-brake in course of time, to say nothing of their great usefulness in cabinet work. As I go into the forest I admire those stately trees planted there by the hand of nature, and wish I could protect them from the ravaging hand of man. I return and look upon those that I have recently planted, and think what a little effort it cost me, and what a world of pleasure for those who may come after to enjoy their shade and admire their stately form."—Forest trees which send down long and strong tap roots, as do walnuts, hickories, oaks, etc., should have the tap root cut off, without lifting the plant, at the close of the first season. In the early spring it may be lifted and set out again at once after trimming the roots a little. The next autumn the plant may be moved with safety.

"The Best."—Letters are constantly coming in asking for *the best* kind of sheep, the best fastening for cows, the best churn, the best feed cutter, etc., etc. In many cases there is *no* "*the best*" thing, but generally a number equally good. It is much a matter of taste which is the best for a given individual. Shall we say that this or that reaper is the best when there are many all so near perfection that the judges disagree? It will be a long time before *the best* in many cases will be settled beyond a doubt. While there is doubt, situated as we are, it is *the best* for us to keep still. To give an opinion is one thing, but to decide out and out is another.

The Sweet Potato.—But a few years ago it was thought that the sweet potato could not be grown north of Virginia, but it is now a profitable crop in many Northern and Western States, and instead of being a luxury, is within the reach of almost every family. The Jersey sweet potato is now much esteemed, but it is not as highly colored—not as yellow—or as rich in flavor as those which come to us from further regions south.

"Fire-Fanging."—"C. M. H.," asks: "How may we know by its appearance when manure is over heating in fermentation—'fire-fanging' as it is called?"—Watch it.

Carriage Gate.—We have several inquiries for *the best* carriage gate that can be opened and shut without leaving the vehicle. Good ones in use ought to be advertised; we do not know which is the best.

American Beef in England.—The "Privy Council" of Great Britain, as we understand their powers, are a body of gentlemen acting under the direct authority of the Queen in regard to matters which are not provided for by law, and which require immediate action. Their decisions are usually liberal and just, and their action in regard to the slaughter of American beasts 14 days after landing, though it is certainly arbitrary, and damaging both to our interests and to those of many citizens of Great Britain, may yet be of great service to us. Judge Jones, of Ohio, in a letter to the President, dated Liverpool, August 4th, after explaining the effects of this requirement, says: "The short argument of the advocates of compulsory slaughter is this—*Pleuro Pneumonia* is known to exist in the United States, and the Government has adopted no measures for its extirpation or even to determine the localities where it prevails." Of course they must regard the whole country as infected. We cannot say a word. A good bill was introduced in Congress last winter, and though strong efforts were made to carry it through, it failed. Now the Treasury Department contents itself with what it regards as retaliatory action in subjecting all neat cattle from Great Britain, though coming with a clean bill of health, to a quarantine of 90 days. This does not punish either the Privy Council or the English people, but our own importers of choice stock. It does no good, and importations of neat cattle have almost entirely ceased. Judge Jones urges the appointment by the Treasury Department, of a gentleman of character, to prescribe regulations for the conveyance of healthy beef cattle through infected districts to the ports of shipment, and to send such with a clean bill of health. When this is done he thinks American beef will be permitted to be landed and fed a while before slaughtering. We need something like the Privy Council in this country, to act in cases of emergency, when Congress fails, and when the interests of the country suffer from neglect. It would seem as if the President and Cabinet might be depended upon to act in exactly such cases as this, but they do not, and one of the most important industries of the country languishes. We are much obliged to the Hon. T. C. Jones for writing and to Mr. Hayes for publishing his letter, and sending the *American Agriculturist* a copy.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Oct. 9th*, 1880, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d's *this* m'th 507,000	6,997,000	6,304,000	212,000	473,000	1,533,000	
26 d's *last* m'th 491,000	7,840,000	4,661,000	316,000	——	1,181,000	

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d. *t's* m'th 539,000	31,016,000*	14,948,000*	259,000	285,000	3,109,000*	
26 d. *l't* m'th 436,000	28,214,000*	15,930,000*	212,000	——	2,406,000*	

* Including forward delivery.

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1880..507,000	6,997,000	6,304,000	212,000	473,000	1,533,000	
28 days 1879..561,500	9,104,000	7,043,000	582,000	497,000	1,146,000	

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1880..539,000	31,016,000	14,948,000	259,000	285,300	3,109,000	
28 days 1879..607,000	21,156,000	10,265,000	851,000	152,000	2,087,000	

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Oct. 7, '80..	2,328,321	3,272,024	55,431	19,324	449,202	134,890
Sept. 7, '80..	2,636,742	2,326,245	65,612	15,471	76,976	174,083
Aug. 10, '80..	3,046,607	1,784,441	46,004	25,283	78,910	202,553
Oct. 8, '79..	2,187,893	1,672,136	27,312	31,211	578,056	207,729

4. *Exports from New York, Jan. 1 to Oct. 7.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'80.	2,867,000	49,320,000	39,814,000	1,501,000	257,000	405,000	149,000
'79.	2,621,000	51,473,000	28,815,000	3,504,000	131,000	501,000	281,000
'78.	1,892,300	41,971,060	22,847,400	3,421,550	1,516,200	2,980,300	315,200
'77.	1,105,200	10,662,600	19,982,250	1,632,300	803,250	157,000	190,800
'76.	1,517,090	20,121,369	14,245,477	816,474	39,362	460,481	470,830
'75.	1,442,211	20,631,499	10,760,680	154,510	225	101,323	240,882

CURRENT WHOLESALE PRICES.

	Sept. 9.			Oct. 9.		
FLOUR—Super to Extra State	$3 25	@	4 15	$3 50	@	4 40
" Super to Extra South'n	3 25	@	6 25	3 50	@	6 50
" Extra Genesee	4 25	@	5 75	4 40	@	5 90
" Superfine Western	3 25	@	4 00	3 50	@	4 10
" Extra Western	3 75	@	8 25	4 00	@	8 50
" " Minnesota	3 85	@	8 25	4 00	@	8 75
RYE FLOUR, Superfine	4 40	@	5 00	4 50	@	5 00
CORN-MEAL	2 50	@	3 25	2 50	@	3 30
CORN-FLOUR, ₱ bbl	2 85	@	3 85	3 00	@	4 00
OAT-MEAL, ₱ bbl	4 50	@	6 50	4 75	@	6 50
BUCKWHEAT FLOUR, ₱ 100 lbs	—	@	—	2 25	@	2 50
WHEAT—All kinds of White	95	@	1 08¼	1 00	@	1 17
" Red and Amber	90	@	1 08	1 00	@	1 17
" Spring	90	@	1 02½	1 00	@	1 16½
CORN—Yellow	52	@	61	52¾	@	67
" White	51½	@	55	54	@	55
" Mixed	50½	@	51¾	52½	@	53¾
OATS	37	@	45	38	@	45
RYE	86	@	89	97	@	99
BARLEY	75	@	95	70	@	95
HAY—Bale, ₱ 100 lbs	70	@	1 05	70	@	1 10
STRAW, ₱ 100 lbs	50	@	85	55	@	90
COTTON—Middlings, ₱ lb	11¾	@	11¾	11½	@	11½
HOPS—Crop of 1880, ₱ lb	21	@	40	20	@	28
" old, ₱ lb	4	@	14	4	@	25
FEATHERS—Live Geese, ₱ lb	40	@	50	47½	@	50
SEED—Clover, W. & St. ₱ lb	8¼	@	8¾	8¼	@	8¾
" Timothy, ₱ bushel	2 30	@	2 35	2 35	@	2 50
" Flax, ₱ bushel	1 30	@	1 35	1 35	@	1 40
TOBACCO, Kentucky, &c., ₱ lb	4	@	15	4	@	15
" Seed Leaf, ₱ lb	5½	@	50	5½	@	50
WOOL—Domestic Fleece, ₱ lb	20	@	48	18	@	48
" Domestic, pulled	20	@	46	18	@	45
" California	15	@	35	15	@	33
TALLOW, ₱ lb	6¾	@	6¾	6¾	@	6½
OIL-CAKE—₱ ton	29 00	@	29 50	30 00	@	—
PORK—Mess, ₱ bbl	—	@	16 00	16 00	@	—
" Extra Prime, ₱ bbl	12 00	@	12 50	12 00	@	12 50
BEEF—Extra Mess	10 00	@	10 50	10 00	@	10 50
LARD, in trcs. & bbls, ₱ 100 lb	8 25	@	8 70	8 45	@	9 10
BUTTER—State, ₱ lb	17	@	28	21	@	32
" Western, poor to f'cy, lb	16	@	28	16	@	32
CHEESE	9	@	12¾	8½	@	13¼
EGGS—Fresh, ₱ dozen	16½	@	19½	20	@	23½
POULTRY—Fowls, ₱ lb	11	@	15	10	@	15
" Chickens, ₱ ₱	11	@	18	10	@	16
" Roosters, ₱ ¼	5	@	8	4	@	8
" Turkeys, ₱ lb	12	@	16	8	@	11
" Geese, ₱ pair	1 12½	@	1 62½	1 00	@	1 62½
" Ducks, ₱ pair	40	@	75	40	@	75
" " ₱ lb	10	@	14	11	@	16
" Wild, ₱ pair	—	@	—	15	@	60
PIGEONS, ₱ dozen	75	@	1 50	1 25	@	2 50
SNIPE, ₱ dozen	40	@	1 75	35	@	1 50
WOODCOCK, ₱ pair	1 12	@	1 25	50	@	75
GRASS PLOVER, ₱ dozen	2 25	@	2 50	—	@	2 00
REED BIRDS, ₱ dozen	—	@	—	75	@	1 25
GROUSE, ₱ pair	—	@	—	50	@	75
PARTRIDGES, ₱ pair	—	@	—	50	@	1 00
VENISON, ₱ lb	—	@	—	10	@	17
PEACHES, ₱ basket	20	@	1 00	—	@	—
APPLES, ₱ barrel	75	@	1 50	50	@	1 50
PEARS, ₱ bushel	1 25	@	6 00	2 00	@	6 00
QUINCES, ₱ bbl	—	@	—	2 50	@	4 50
WHORTLEBERRIES, ₱ hf bush	2 00	@	2 50	—	@	—
GRAPES, ₱ case	1 50	@	3 25	1 50	@	2 75
" ₱ lb	1½	@	6	2½	@	8
POTATOES, ₱ bbl	1 00	@	1 75	1 12½	@	1 75
" Sweet, ₱ bbl	1 50	@	3 00	1 25	@	2 75
TOMATOES, ₱ box	25	@	50	20	@	30
TURNIPS, ₱ bbl	1 00	@	1 50	50	@	1 00
BEANS, ₱ bushel	1 35	@	1 85	1 30	@	1 75
EGG PLANTS, ₱ bbl	1 00	@	1 50	1 25	@	2 00
PEAS—Canada, in bond, ₱ bu	—	@	—	—	@	—
" new, green, ₱ bag	1 00	@	2 00	1 50	@	2 50
CORN, green, ₱ 100	50	@	1 00	50	@	75
STRING BEANS, ₱ bag	25	@	50	50	@	75
CARROTS, ₱ bbl	1 00	@	1 50	1 25	@	1 75
BEETS, ₱ 100 bunches	1 00	@	1 50	1 00	@	1 50
CABBAGES, new, ₱ 100	2 00	@	7 00	1 75	@	6 00
ONIONS, ₱ bbl	2 50	@	2 75	2 50	@	4 00
CRANBERRIES, ₱ bbl	—	@	—	—	@	—
SQUASH, ₱ bbl	50	@	75	50	@	75
WATERMELONS, ₱ 100	7 00	@	14 00	—	@	—
NUTMEG MELON, ₱ bbl	50	@	1 50	—	@	—
PUMPKINS, ₱ 100	—	@	—	2 00	@	4 00
CUCUMBERS, ₱ 100	20	@	30	20	@	25
CAULIFLOWER, ₱ dozen	—	@	—	1 00	@	3 00
CELERY, ₱ dozen	—	@	—	75	@	1 00

Notwithstanding the remarkable vigor of the fall trade, and the consequent urgent requirements as to financial facilities, Money has worked almost uniformly easy in the loan and discount lines, since our previous issue. Very extensive dealings have been reported in the leading kinds of Produce and Merchandise, with a free movement in Stocks and Bonds, at generally buoyant prices. A firm and hardening market has been reported for Real Estate, on a good investment demand.....Transactions in Breadstuffs have been unusually heavy, largely for regular trade purposes, though in the instances of Wheat and Corn, chiefly in the speculative interest at higher quotations, Winter Wheat rising very sharply toward the close, as influenced mainly by the stimulating reports from Chicago and other points in the interior, as also, toward the close, by Cable. Export purchases of Wheat, Corn and Flour have been on a liberal scale, notably so of Winter Wheat. Near the close, Spring Wheat attracted more attention from shippers and was marketed to a fair extent on the basis of $1.08¾ for No. 2 Chicago, in store; $1.10½ for No. 2 Milwaukee, to arrive; $1.12 for choice ditto, prompt delivery; $1.16½ for new crop, No. 1 Duluth to arrive from Buffalo (the first sale of the latter made, this season, made here on Thursday, 7th October, by Messrs. S. Freeman & Co., to a local miller).....Corn has been offered with reserve, and quoted firm at the improvement, with a fairly active inquiry reported.....Rye has been quoted decidedly dearer, is in meagre stock, and much wanted for shipment.....Oats have been unsettled, generally—toward the close, receding in price, with more eagerness shown to place supplies, and a less urgent call.....Barley declined materially, is plentiful and quite moderately sought after.....Flour left off in favor of holders, on a brisk call for supplies, as well for export, as on home trade account.... As practically under speculative control, Mess Pork and Western Steam Lard, have been advanced materially, on active and excited markets, Mess Pork closing, however, tamely, and in the option line, depressed and wholly unsettled.... Large transactions have been reported in Lard for shipment.....Beef and Beef Hams have been moderately sought after at about previous figures.....Butter, Cheese and Eggs were quoted higher, but closed again in favor of purchasers.....Fruits attracted increased attention. Extraordinary heavy shipments of Apples have been noted, mostly for Great Britain. Freight contracts have been reported here for the current month to an amount exceeding 125,000 bbls. for all destinations, the bulk going to Liverpool, London, and Glasgow by steam. Important outward movements are also advised from Boston and Montreal.....Freer offering of Hops led to a further decline, and a moderate degree of activity.....Seeds have had a slow sale at irregular figures....Cotton has been in fair request, chiefly in the way of options, but at very variable quotations, leaving off more steadily.....More inquiry has been reported for Wool, which closes more firmly..... Hay and Straw ruled stronger as to prices, on light offerings and a fair demand.....Naval Stores and Petroleum have been on the advance, on reduced offerings and a more urgent demand.....Rallying from the depression and irregularity mentioned in our preceding review, Ocean freights have been remarkably active for Breadstuffs, especially for grain, at advanced rates, closing firmly, including by steam to Liverpool, 6½*d.* per bushel, London by steam, at 8@8½*d.*; Glasgow, by steam, at 6@6½*d.*; to Bristol, by steam, at 8½*d.* per bushel; to Antwerp, by steam, at 8*d.* per bushel, and sail to Cork, for orders for vessels of average carrying capacity—say 3,000 to 4,000 qrs.—5*s.* 6*d.* per qr. of 480 lbs....The visible supplies of Wheat—embracing the hoards at lake ports, in transit, and on the seaboard—at latest dates, embraced about 14,360,800 bushels; of Corn, 19,812,200 bushels; of Rye, 664,850 bushels; of Barley, 1,403,500 bushels, and of Oats, 2,746,400 bushels, against about Sept. 1, an aggregate of 14,716,000 bushels Wheat, 19,012,000 bushels Corn, 574,000, bushels Rye, 265,000 bushels Barley, and 1,626,000 bushels Oats.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Sept. 13	16,677	106	4,352	36,849	24,539
Sept. 20	14,554	130	5,448	43,650	23,214
Sept. 27	13,770	148	5,121	38,559	30,163
Oct. 4	13,422	60	4,593	39,682	32,607
Total for 4 Weeks	57,223	444	19,614	168,740	110,523
do. for prev. 4 Weeks	51,282	227	19,916	137,773	107,642

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per week	14,306	111	4,906	42,185	27,631
do. do. *last Month*	12,820	57	4,979	34,443	26,910
do. do. *prev's Month*	14,245	97	5,022	36,885	23,814

Prices for beeves per lb. estimated dressed weight:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
Sept. 13	7 @11 c.	8¾@ 9¾c.	9¼c.
Sept. 20	6¼@11½c.	8¼@ 9½c.	9 c.
Sept. 27	6½@11½c.	8 @ 9½c.	8¾c.
Oct. 4	6¼@11½c.	8 @ 9½c.	8¾c.

Beeves.—A slow, dull market has prevailed for the most of the month. Cattle have been in abundance, with an unsatisfactory dressed meat market, and very little demand from exporters. The month closes with some demand for prime and extra. A conspicuous feature has been the number of Texans and Colorados on sale; the former sold for 6¼@6¾c., and the latter for 7@7¼c. Native cattle ranged from 7c. to dress 55 lbs., to 9c. to dress 56 lbs. Choice lots for 10¼@11¼c., and a few extras for 12c. to dress 58 lbs....**Milch Cows.**—There has been a light trade from lack of stock. The demand good and prices firm at $35@$55 per head for common to prime cows, with a few extra ones at $60....**Calves.**—There was a gradual falling off in the number sold during the month, but the market was active under the influence of a light run. Grassers 2@2¼c. live weight; buttermilk and fed calves at 2¼@3¼c.; common to choice veals at 5@7¼c., and fancy lots at 7¾c.... **Sheep and Lambs.**—A better feeling prevailed at the close of the month, and the market ended fairly active owing to a prospect of lighter supply. Common to good sheep sold at 4@5c. per lb., live weight, prime lots at 5¼@5½c. Lambs ranged from 5@6c., while some prime State lambs brought 6¼@6½c.... **Swine.**—Market quiet and a strong downward tendency; State hogs sold at 5½c., with heavy ones as low as 4¾c.

The Horse Market.—The epidemic which has been among horses has had its influence upon the market. There have been no fatal cases reported, and the trouble is about passed. There is no special interest in the horse trade; the supply is in excess of the demand, and the prices in favor of the buyer.

Prices of Fertilizers.

Nitrate of Potash (95 per cent), per lb	8 @8½c.
Sulphate of Potash (potash 44 per cent), per lb	3½@4 c.
do. do. (potash 27½ per cent, per lb	1¾@1¾c.
German Potash Salts (potash 12 to 15 p. c.), p. ton	$14.00@16.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼c.
Nitrate of Soda, per lb	4¾@5 c.
Sulphate of Ammonia (25 per cent), per lb	4¾@4¾c.
Dried Blood (ammonia 13 per cent), per ton	$40.00@45.00
No. 1 Peruv. Guano, Lobos, ₱ ton	46.00
do. do. guaranteed, ₱ ton, cargo M	56.00
Soluble Pacific Guano, per ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (clay soils), per 1,000 lbs	25.50
do. do. do. (light soils), per 1,000 lbs	25.50
do. do. do. "A" Brand (wheat), ₱ 1,000 lbs.	20.00
do. Tobacco do. do.	52.00
do. Fruit and Vine Manure, per ton	37.00
do. Pure Raw Bone, per ton	38.00
Homestead Superphosphate, per ton	40.00
do. Tobacco Grower, per ton	60.00
Banner Raw Bone Flour, per ton	45.00
Stockbridge Rye Manure, per ton	45.00
do. Wheat Manure, per ton	45.00
do. Seeding Down Manure, per ton	40.00
Bowker's Wheat Phosphate, per ton	40.00
Walton, Whann & Co.'s Raw Bone Phosphate, per ton	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

Catalogues Received.

The following are the special Autumn Catalogues that have been received up to the time of going to press:

NURSERYMEN.

CHAS. BLACK & BRO., Hightstown, N. J.—Price List of Trees and Plants for fall and spring planting.

B. K. BLISS & SONS, No. 34 Barclay street, New York City. The autumn catalogue of this old house is full, as in former years. Dutch and Cape flowering bulbs; complete list of small fruits and seeds, etc., for farm and garden.

M. COLE & CO., Atlanta Ga. A descriptive list of the Atlantic Nurseries; fruit and ornamental trees, roses, etc.

WM. H. CARSON, No. 125 Chambers street, New York City, sends out a neat catalogue of bulbs for autumn planting, with directions for their culture.

HENRY S. DREER, 714 Chestnut street, Philadelphia, Pa. A full assortment of bulbs, plants, etc., with rules for their culture and management.

FARLEY & ANDERSON, Union Springs, N. Y. A fall trade list of the "Cayuga Lake Nurseries." Duchess grape, etc.

EDWARD GILBERT, Southwick, Mass. Price-list of native perennial plants, orchids, rare ferns, etc.

JENKINS' NURSERIES, Winona, Ohio. A wholesale list of evergreens, small fruits, seeds, Prentiss grape.

KELSEY & CO., St. Joseph, Mo. Price-list of the "Vineland Nursery."

D. W. LANGDON, Mobile, Ala., sends a neat and full catalogue of fruit and ornamental trees, small fruits, roses, evergreens, etc.

J. T. LOVETT, Little Silver, N. J. The fall catalogue of the Monmouth Nursery is devoted specially to all kinds of small fruits.

GEO. P. MURRELL, Austin, Ark. A descriptive price-list of the "Austin Nurseries."

D. S. MYER, Bridgeville, Del. A neat catalogue of fruit and ornamental trees, small fruits, plants, roses, etc.

E. M. POTTER, Kalamazoo, Mich. "Asylum Hill Nurseries"; small fruits and ornamental trees.

JOHN SAUL, Washington, D. C. A neat catalgone of trees, fruit, and ornamental shrubs, roses, and greenhouses; also descriptive list of Dutch and other bulbs.

GEO. S. WALES, Rochester, N. Y. Strawberries, shrubs, vines, and roses.

J. C. VAUGHAN, 45 La Salle street, Chicago. A neat illustrated list of bulbs, grasses, and florist's supplies.

E. WYMAN, Jr., Rockford, Ill. Price-list of plants for fall planting.

PETER HERDERSON, & Co., No. 35 Cortlandt street, New York City. A neat circular of bulbs and winter flowering plants, roses, etc.

GEO. S. JOSSELYN, Fredonia, N. Y.—Trade price-list of grape vines, small fruits, etc.

F. A. SINCLAIR, Mottville, N. Y. An illustrated price-list of the excellent common sense chairs and rockers.

A Removal.—One of our old advertisers, Mr. Blunt, the inventor of the Universal Force Pump, and for some time associated with the Nason Man'f'g Co., has again assumed the entire manufacture and control of his favorably known pumps, with an office at N. Y. City.

Will a Creamery Pay?—Will butter-making pay anyhow? If it will pay to make good butter in the private dairy, then a well managed creamery will pay; but it must be well managed. A question to which this is the answer comes to us from Montgomery Co., Pa. There are several reasons why creameries fail to be profitable. If one farmer's milk has 7 or 8 per cent of cream and another's has 20, and others all along between, the poor milk being largely in excess, when dividends are made according to the weight of milk furnished, it is clear that not only do the men who furnish good milk lose heavily, but the creamery loses also. The cream and the butter, of badly fed, or half starved, cows has no flavor. Such butter cannot sell at a high price, and a little such milk or cream will damage the whole product. Creamery butter that cannot beat "Oleo," is made at a loss, and ought to be.

Asbestos Liquid Paints.—Through a number of years, the H. W. Johns Mfg. Co. have established an enviable reputation for making liquid paints that are remarkable for their durability and beauty. Their Asbestos Liquid Paints have real merit, and all who contemplate painting their farm and other buildings should bear this in mind. We can gladly refer the reader to our recommendations of this firm and its paints in the past.

Moss Collars for Horses.—During the late war the Northern soldiers became acquainted with Southern Moss in all its forms. They saw it growing in long gray streamers from the cypresses in the swamps. They saw the negroes gathering it, sweating it, and rubbing it free from the outer coats, leaving the horse-hair like, wiry threads which form the inside and are the useful part. This, in trade, is known as Southern Moss, and is used like horse-hair for stuffing seats, beds, etc., and as an "adulteration," so to speak, of curled hair. Twisted into ropes, it gets a regular curl like horse-hair, and it requires a moderately close inspection to tell which is which. The soldiers found saddle cloths plaited of this moss by twisting it into cords, to be most excellent, curing saddle-galls, and preventing sweat-blisters, and pads made to go under mule-collars, and wherever the harness galled, were good also. We have received a well-made horse-collar of this material, bound with leather at top and bottom, and with leather fenders to prevent wear from the trace chains. They appear to be a very good article, and we see no reason why the manufacturer, Mr. A. D. Martin, of Louisiana, should not have a large trade in them, both South and North.

Cord Binders for Harvesters.—A number of different materials as straw, and wire, have been in use by the self-binding harvesters, but farmers are not satisfied with the work, and have frequently applied for a binder that would employ a cord. The manufacturers of the Champion Reapers have developed an Automatic Cord Binder, which has done excellent work in the field during the past season, and bids fair to meet the want of those who have grain to cut, and wish to bind it in a neat and substantial manner.

Grass Seed.—"C. M. H." The seeds of the common grasses will retain their vitality two or three years, and even longer if kept dry, but the longer they are kept the slower they are in coming up and the fewer start.

Concrete Buildings.—"H. W. G.," Steuben Co., N. Y. In Dec., 1874, we gave full descriptions of the method of preparing Concrete, and of building with it. That or any other single back number of the *American Agriculturist* for 24 years past is mailed for 15 cents.

Sporobolus Indicus—Smut Grass.—In response to a request in the September number, D. L. Phares of Starkville, Miss., sends the following notes on the Indian Drop-Seed Grass or Smut Grass: "This perennial plant from India is thoroughly naturalized and at home in our Southern States. In some localities it is known as "Carpet Grass," as are also several other grasses. Its generic name is founded on the fact of its easily shedding its seeds, and it is hence called Indian Drop-Seed Grass. Many of the panicles become affected with a dark-colored parasitic growth, which adheres tightly to clothing coming in contact with it, giving it a smutty appearance, and hence the grass is appropriately and more generally called 'smut grass'. On many commons, uncultivated fields and yards, it grows abundantly and luxuriantly, and furnishes good grazing from April until frost in autumn. It thrives well under much grazing and many mowings, and grows promptly after each, on good, moist land. Cattle and horses are fond of it; but if not kept well grazed or frequently mowed it becomes tough and they refuse to eat it unless quite hungry. From long fibrous roots it sends up clumps of long leaves in great abundance. I have just measured some leaves three feet long. This, however, is an extreme length. The culms are usually one and a half to three feet high, with panicles six to eighteen inches long. I have just measured within a few steps of where I am writing, culms four feet eight inches long with panicles eighteen inches. The appressed panicles might be mistaken for spikes. The clumps enlarge rapidly, and soon occupy the whole ground densely. In 1878, I sent to the Department of Agriculture for analysis some hay of this grass. Dr. Collier's analysis shows in 100 parts 12.46 albuminoids, 55.44 carbohydrates, 25.91 cellulose, and 6.19 ash. Although containing so much nutritive matter, it is not so much relished dried as many other grasses.

Some Notes on Pork.—Much as it is the custom to decry pork, it is "the farmer's meat." It is the only steady meat that many farmers can afford to have, unless too rich to need to farm at all. One reason why so much has been said against pork is the careless way in which it is often prepared. Pork that is used should always be properly cured and in good condition. I send a few recipes of my own.—*Fried Pork.*—This should be cut in rather thin slices and parboiled in a little water. Pour off the water and fry quickly. Lay it on the platter and pour over it a few tablespoonfuls of sweet cream, or if preferred the gravy in which it has been fried. Or make a batter with two eggs, half a cupful of sweet milk, and flour enough to make a thick paste, and dip the slices in this after they have been fried. Return the pork to the spider, and fry it in the batter, and it makes quite an addition to the dish. *Baked Pork.*—A square piece of fat pork may be soaked over night in sweet milk, and washed off; cut the rind in squares and bake until tender. This is very good. *Boiled Pork.*—A piece of pork boiled an hour and a half, than cut in slices and treated to a dash of pepper and vinegar, catsup or Chili sauce, makes a desirable dish to be eaten either hot or cold. "R. C. D.," Walworth Co., Wis.

Cubic Feet in a Ton of Manure.—"C. T. S.," Springfield, O. A ton of manure as generally hauled out in the spring, moist and compacted more or less, and then thrown into a wagon, will contain 40 to 48 cubic feet. It is very indefinite and must necessarily be so.

Weeds.—The farmers should be deeply interested in the two leading points concerning weeds: how they get into the fields and garden, and how to get those out that are already in. Many of the seeds of weeds are sown with those of the crop, especially is this the case with those that are nearly of the size, color, etc., of the grains, and grass seeds. Great care should be exercised in sowing only pure seeds. If the weeds are already in the soil, the quicker steps are taken to eradicate them the better. Let no weeds go to seed. This will end the annuals. With perennials the work is more difficult, but it should be remembered that they are much more easily destroyed when young. Cut frequently and dig out by the roots when possible.

A Peach Trouble.—"C. W." Wethersfield, Conn., writes: "Here are leaves from the twigs of seedling peach trees. They have appeared on our young trees in late summer and autumn, for a few years past. We throw the seeds about on our vegetable garden where they have a good soil and pretty careful cultivation, and do not have a separate nursery for the few trees we need for ourselves or to give away. I would be pleased if you could give me any light on this matter, whether it is very injurious or whether there is a remedy. I have trimmed off the affected twigs from some trees, but the trouble soon reappears. They grow rapidly nevertheless. It seems to be unlike the curling of the leaves in early summer, which was so common a few years ago, and which caused the large trees to shed their leaves once or twice, perhaps more times, in the season."—The young peach leaves are affected with a parasitic fungus which grows upon the surface, sending in here and there small root-like outgrowths for the purpose of absorbing nourrishment. The white floury, or frosty appearance of the leaves is due to the multitude of spores which have formed. The fungus is one of the White Mildews, a treatment of which, with illustrations, may be found in the *American Agriculturist* for December 1879, page 508. The oaks, maples, willows, lilacs, etc., are attacked by various closely related species of this same group of White Mildew. The European Grape Mildew—a disease which has been so disastrous to the foreign vineyards, belongs to this same group. The remedy is Flowers of Sulphur, dusted on as soon as the mealy or frosty appearance is observed. Cutting away the twigs is not recommended, as it can do very little good.

The "International" Sheep Show.—The display of sheep at Philadelphia was not largely International; but contained many excellent representatives of our own flocks from the East, the Great Plains, and Pacific Coast. Of the few hundred sheep on exhibition about half were Merinos, and the others were distributed amongst the Leicesters, Lincolns, Southdowns, Hampshires, Shropshires, and Oxfordshires; some of the latter were recent importations from English flocks, and of great size. The attendance of wool-growers and breeders was not large. During the discussion the fact that "the manufacturers desire the production of precisely the kind of wool the farmers find most profitable to grow," was considered. A national registry of sheep was provided, and a winter meeting for discussion appointed, to be held in Washington in January next.

Another Adulteration in Butter.—The New York dealers in butter, finding that the tubs overran in weight, five to six pounds, were at a loss to account for the fact, until they discovered that the increase in weight was caused by an addition of powdered soapstone. This "loaded" butter came from the city of Cincinnati. The powdered soapstone is white, fine, and tasteless, and is sold for $20 per ton. It is not butter!

Canada Thistles.—Daniel Keefer, of Penn., tried the salt cure for Canada Thistles. He cut the thistles short, August 1st, and put a tablespoonful of salt on each stalk or stub. They wilted at once, dried, and by Oct. 1st, had disappeared. This requires even less patience in application than the persistent following up with the knife, and cutting them as one does asparagus just below the surface of the ground.

Barrels for Keeping Roots.—The following is from one of the essays, "Keeping A Cow on Cape Cod," by Mr. Nickerson, published in the new book, "Keeping One Cow," and gives his method of using barrels for storing roots. "We have a way of our own for keeping our roots in the absence of a vegetable cellar, or when we do not want them in the house cellar. We take any old barrels, set them in the ground, the chine just coming to the top of the ground (we do not want a head in either end of the barrels). Into these headless barrels we put our beets, turnips, cabbages, etc. As the weather grows cold, we cover the barrels with some loose boards. Whenever it is cold enough to freeze hard, we throw over them enough hay or straw to keep out the wet. By this method we can, with very little trouble, at any time get out a barrel or part of a barrel of roots. In this way the roots keep in fine condition. Late in the spring, after the frost is out of the ground, turnips and beets will be as brittle and good as when pulled in the fall." Of course mice must be guarded against.

Success in Wheat Growing.—Mr. D. S. Curtiss in his new work on "Wheat Culture," concludes by saying: "Highest success in Wheat-growing involves and presumes skillful and intelligent management in other parts of farming, so that he who uniformly secures superior results with wheat and does not impoverish his land or soil cannot well be other than a good farmer, able to secure profitable results in all other farm operations. Hence to become an eminent wheat-grower is to become a complete farmer." Mr. Curtiss knows of what he speaks as he has had a wide experience in wheat culture.

Insects and Fruits by Mail.—It is safe to say that one-third of the insects and fruits sent us by mail arrive in a useless condition, on account of the frail character of the box in which they are enclosed. A paper or paste-board box rarely escapes crushing. Wooden and tin boxes usually come in good order. All such packages must be so tied that the contents can be examined. The use of nails or tacks, or closing by pasting, on strips of paper, subjects the package to full letter postage, often very heavy, and which we do not pay.

Draughts of Cold Air in the Stable.—Horses are quite sensitive to chilling draughts of air blowing upon them, and especially upon their heads; hence, in the construction of stables this should be borne in mind. Many stables have the horses face an alley a long the sides of which are doors, or a large space is left entirely open; in such cases, whenever the rear stable door and the one leading out of the alley are open, the horses stand in a chilling draught, from which they can not escape. Horses, like many people, can stand much wind in an open field, but will catch cold while in a draught only a short time. With proper ventilation, the doors of the stable should be kept closed in cold weather, that no draughts may occur.

Native Amphibians.—"C. E. N.," of Lindsay, Ont., writes to us to aid him in procuring a horned toad. This we cannot do. He wishes to study its habits, etc. We advise him to study the habits of our native Amphibians, frogs, toads, tree toads, salamanders, newts, and lizards. Possibly there are no lizards in Canada, but there are others we have named. Their habits are exceedingly interesting, and not very well known even to naturalists, for very few have the patience or leisure to watch them and study carefully all their ways. All such knowledge is of use—with it we may be able to secure the cooperation of these animals in controlling our insect enemies, for they live upon insects, and it is at any rate well to know what good friends they are to man.

"YES."—Three Years for $4.

To sundry inquirers. Several ask if they cannot make their own subscriptions to run three, four, or more years, at the club rates, as three years for $4, four years for $5, and so of other club rates. We will answer, "yes," when specially desired, though the preference would be for a greater variety of names.

November Fair List.

STATE FAIRS

Alabama	Montgomery	Nov. 8-13
South Carolina	Columbia	Nov. 9-12

Industrial and District, &c.

Am. Institute	New York	Sept. 15-Nov. 27
Illinois Fat Stock	Chicago	Nov. 15-20

Poultry Exhibitions.

Terre Haute Pet Stock A s'n.	Terre Haute, Ind.	Dec 14-21
New Je sey State Society	Newark	Dec. 14-21
Pottstown Pigeon Club	Pottstown, Pa	Dec. 15-17
Dist. of Columbia Ass'n	Washington, D. C.	Dec. 15-22
Eastern N. Y. Fanciers' Ass'n.	Troy	Dec. 22-28
Wide Awake Poultry Club	St. Johnsbury, Vt.	Dec. 28-30
Windham Co.	Brattleboro, Vt	Jan. 4- 7
Southern Mass Ass'n	New Bedford	Jan. 4- 7
Saginaw Valley Ass'n	East Saginaw, Mich.	Jan. 11-14
Champlain Valley Ass'n	Burlington, Vt.	Jan. 11-14
Cent al Mass. Ass'n	Worcester	Jan. 11-14
Springville Ass'n	Springville, N. Y.	Jan. 12-14
Cleveland Poul'y & Pet Stock.	Cleveland, O.	Jan. 12-19
Western Penn. Society	Pittsburg, Pa.	Jan. 13-19
Lancaster Poultry Ass'n.	Lancaster, Pa.	Jan. 14-19
Vermont State Poultry Ass'n.	Rutland	Jan. 18-21
Union Pet Stock Ass'n	New Berlin,—	Jan. 18-21
Northern Indiana Poul'y Ass'n.	Fort Wayne	Jan. 18-22

Natural History of the Horse Bot.—Mr. J. H. Parmenter, of Framingham, Mass., gives very concisely his observations and conclusions about bots, the former are so accurate and the latter so just, that we print them. Many horses die of colic, on opening them bots are discovered, and the wise ones say, "Ah! no wonder he died. There are bots enough to kill any horse."—Mr. P. writes: "I am a farmer, and have been a butcher, and have killed and opened hundreds of horses at all times of the year, I do not pretend to know how bots get into the stomach of the horse, and I never found them in any other part of the digestive organs. They gather usually upon one side of the coating of the stomach, and arrange themselves just as thickly together as bees on their comb, and fasten there by the posterior part which is pointed. [This is an error. It is the anterior or head part which is pointed and holds on by some little hooks.—ED.] The bots cause the lining of the stomach to thicken up half an inch or more. When the horse is poor this spot becomes inflamed and looks as raw as cut meat. The bots live (as I suppose) upon the same food as the horse, absorbing it through their skin, and when the horse is well fed does no appreciable harm; but upon an old and poor horse that has run at pasture all summer, and has a great many bots in the stomach, they become destructive to its life. I do not think the horse is ever attacked suddenly. I do not think you can give the horse any medicine that will kill the bots and not kill the horse. The bots stay in the horse until turned out to grass, or until that time of the year, and then become mature and let go their hold, pass off in the manure, and soon become a fly to lay more eggs. The eggs, deposited on the hair of the horses legs and neck may be very readily taken off with a sharp knife, and this will prevent their being taken into the stomach.

Cool-Room in an Ice-House.—"T. B. B.," Potter Co., Pa. Your cool-room will prove to be cool enough, if it is placed at one side of the ice-house, so that the ice may remain in one solid mass. The wall of the cool-room against the ice being simply of matched inch boards, will become cold, and lower the temperature of the room sufficiently for keeping fruits and meats.

Tarring Fence Posts.—"R. S. N.," Kenosha, Wis.—The posts should be thoroughly dry and seasoned, the gas tar should be applied hot, and all sprinkled thickly with dry sand, so as to form a uniform coating. The posts should be left out of the ground until the coating has thoroughly stiffened, or, indeed, hardened. Thus treated, they will last for a much longer time.

Are You Going to New York? Then Stop at the

TURKISH BATH HOTEL,

13 & 15 Laight St., New York.

This well-known house is convenient of access from all parts of the city. The table is supplied with the best kinds of food, healthfully prepared. The house is noted for its pleasant parlors, and the cheerful, home-like feeling that prevails. It has just been refitted, and the prices are moderate. Connected with the house are Turkish Baths, etc., etc.

Send for circular.

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$14 SHOT GUN! The Best Double-Barreled Shot-Gun in the world for the money. Warranted genuine twist, with *flask, Ball Box Wads, Box Caps and Wad Punch.* Also our celebrated Kentucky Rifle for *$12, warranted or no sale.* Send for Illustrated Catalogue and Price Lists to **James Bown & Son,** Enterprise Gun Works, *136 & 138 Wood St., Pittsburgh, Pa.* ESTABLISHED, 1848.

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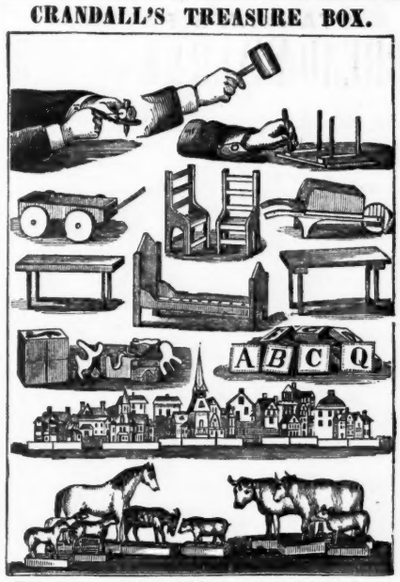

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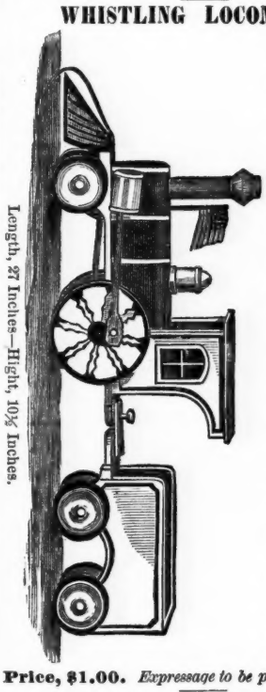

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THE BAKER GUNS.

Fig. 1.

Fig. 2

Three-Barrel GUN.

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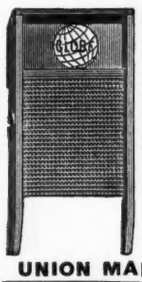

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